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**Anticipation and Improvisation:
The Firebase Concept in Counterinsurgency Operations**

**A Monograph
by**

**Major Randy J. Kolton
Infantry**

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It focuses on the value of the fire base in three counter guerrilla operations: strike campaigns, consolidation campaigns, and fire base defense. Using Huba Wass de Czege's combat power model as criterion for analysis and the Vietnam War as an example of counterinsurgency, it is possible to assess the beneficial and detrimental effects of the fire base concept on combat power.)

Historical evidence indicates that the fire base was instrumental in generating and projecting US combat power in offensive and defensive operations in Vietnam. In addition to facilitating the movement of maneuver, artillery, and logistical units into an area of operations, it enhanced firepower and protection effects. At the same time, the fire base concept could not overcome limitations of ranges of howitzers and surveillance equipment and of penetrating power of munitions against targets moving in triple canopy jungle or hidden in bunkers. To succeed in future counterinsurgencies, contemporary tactical leaders must design concepts of operation that incorporate maneuver and firepower restrictions and reflect limitations of weapons, equipment, and people; they then must marshal available combat power to destroy the enemy. The fire base concept can support this effort by providing a secure location for command and control, logistics operations, surveillance, and when permitted, fire support.

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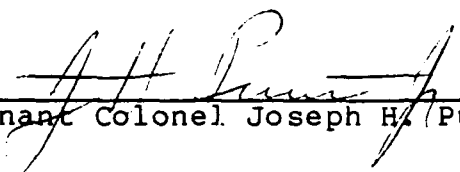
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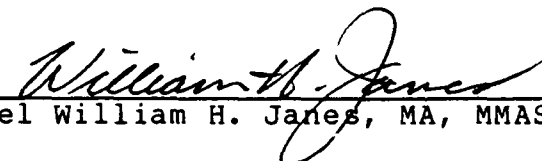
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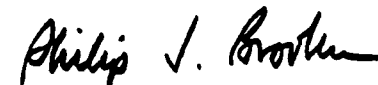
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ABSTRACT

ANTICIPATION AND IMPROVISATION: THE FIRE BASE CONCEPT
IN COUNTERINSURGENCY OPERATIONS by MAJ Randy J.
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Trends in international relations indicate that the United States must prepare to support friendly nations in repelling internal and external threats by assisting them in undertaking essential political, social, and economic reform. At the same time, the U.S. must deter third world conflict by preparing to confront aggressors decisively, swiftly, and with discrimination. Consequently, the U.S. Army must prepare to wage counterinsurgency warfare and counter guerrilla operations. FM 90-8 Counter guerrilla Operations defines current Army counter guerrilla doctrine. It describes the characteristics of insurgencies, the fundamentals of counter guerrilla operations, and the utility of the operational support base (fire base) in facilitating command and control, fire support, and logistics.

This monograph examines the effectiveness of the fire base concept in generating and projecting combat power in counterinsurgency operations. It focuses on the value of the fire base in three counter guerrilla operations: strike campaigns, consolidation campaigns and fire base defense. Using Huba Wass de Czege's combat power model as criterion for analysis and the Vietnam War as an example of counterinsurgency, it is possible to assess the beneficial and detrimental effects of the fire base concept on combat power.

Historical evidence indicates that the fire base was instrumental in generating and projecting US combat power in offensive and defensive operations in Vietnam. In addition to facilitating the movement of maneuver, artillery, and logistical units into an area of operations, it enhanced firepower and protection effects. At the same time, the fire base concept could not overcome limitations of ranges of howitzers and surveillance equipment and of the penetrating power of munitions against targets moving in triple canopy jungle or hidden in bunkers. To succeed in future counterinsurgencies, contemporary tactical leaders must design concepts of operation that incorporate maneuver and firepower restrictions and reflect limitations of weapons, equipment, and people; they then must marshal available combat power to destroy the enemy. The fire base concept can support this effort by providing a secure location for command and control, logistics operations, surveillance, and when permitted, fire support.

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I. Introduction

Trends in international relations indicate that social, political, economic, and ideological conflicts will continue to exacerbate regional tensions and internal problems of third world nations. While it is unlikely that the United States will undertake a major protracted conflict in such countries during the next twenty years, we must prepare to strengthen friendly nations against internal and external threats and to assist those nations in undertaking essential political, social and economic reform. At the same time, the United States must deter third world conflict by preparing to confront aggressors decisively, swiftly, and with discrimination.¹

These factors make it imperative that the US Army prepare to wage counterinsurgency warfare. An insurgency implies a situation in which a nation is threatened by an internal attempt, frequently assisted by external support, to overthrow the legitimate government. Insurgencies occur when the population is vulnerable, insurgency leadership is present, and government lacks control.² To succeed, insurgents must possess or produce popular support, unity of effort, will to resist, leadership, discipline, intelligence, propaganda, favorable environment, and external support. The insurgent organization normally includes

a covert political organization and an overt military element, the guerrilla force.³

The most common role in which US forces will conduct counter guerrilla operations will be as a foreign internal defense (FID) force. FID supports the host nation government's national objectives and internal defense and development strategy. The host nation uses all the leadership, organizational, and material resources at its disposal to identify genuine grievances of its people and takes political, economic, and social actions to redress them. US forces committed to FID have a dual mission. First, they must defeat or neutralize the guerrilla militarily to support the host government's efforts to begin or regain functioning in previously contested or guerrilla controlled areas. Second, they must support the overall counterinsurgency program by conducting noncombatant operations to provide an environment which encourages the people to trust and support their government. Both missions are of equal importance and usually are undertaken simultaneously.⁴ This study focuses on US forces engaged in operations to defeat or neutralize the guerrilla militarily.

To defeat or neutralize guerrillas, US tactical units must increase friendly combat power relative to that of the enemy. The means by which US counter guerrilla forces achieve this end is prescribed

in FM 90-8 Counter guerrilla Operations. In addition to describing the characteristics of insurgencies, the fundamentals of counter guerrilla operations, and offensive and defensive counter guerrilla operations, the manual details the utility of the operational support base in facilitating command and control, fire support, and logistics during counter guerrilla operations.³

The US Army employed this technique during the Vietnam War and referred to it as the operational support/fire base concept. A fire base normally consisted of a battery of artillery defended by a company of infantry with a battalion headquarters providing overall command and control.⁴

This study will examine the efficacy of the fire base concept in generating and projecting combat power in three counter guerrilla operations - strike campaigns, consolidation campaigns, and fire base defense. It is possible to assess the beneficial and detrimental effects of the fire base concept on combat power using Huba Wass de Czege's combat power model $[L_+(F_+M_+P_+-D_-)-L_-(F_-M_-P_-D_+)= \text{Outcome of Battle}]$ as criterion for analysis and the Vietnam War as an example of counterinsurgency. Wass de Czege's model underscores that the appropriate combination of maneuver, firepower, and protection by a skillful leader within a sound operational plan turns combat

potential into actual combat power. Superior combat power applied at the decisive place and time decides the outcome of battle.⁷ While not the purpose of this paper, it is critical that military commanders involved in counter guerrilla operations understand how the economic, political, psychological, and diplomatic dimensions of a host nation's internal defense and development strategy affect the generation of combat power. What might be an appropriate military action in conventional war may be counterproductive in counterinsurgency.

II. Criteria for Analysis - Huba Wass de Czege's Combat Power Model

According to FM 100-5 Operations, combat power is a measure of the effect created by combining maneuver, firepower, protection and leadership in combat actions against an enemy in war. While quantitative measures of available capability are important, the quality of available capabilities, a leader's ability to use them, and the ability of a leader to minimize enemy efforts to degrade his capabilities before or during battle may be equally or more important.⁸ Outcomes of battles and engagements in an environment beset by "friction" are determined by the manner in which potential strengths and resources are directed against the enemy. This conversion of potential is derived principally from intangible factors such as training, motivation, quality of leadership and firmness of purpose. Wass de

Czege's combat power equation $[L_f(F_f+M_f+P_f-D_e)-L_e(F_e+M_e+P_e-D_f)]$ describes the interrelationship of friendly (f) and enemy (e) maneuver (M), firepower (F), protection (P), leadership (L), and degrading effect (D).⁹

Maneuver is the dynamic element of combat. It is achieved by concentrating forces in critical areas to gain and to use the advantages of surprise, psychological shock, position, and momentum to gain an advantage over the enemy. Effective maneuver reflects the combined results of movement capabilities, intelligence of terrain, weather and enemy, command and control of subordinate forces, flexible organizations, and reliable logistics support.¹⁰

Firepower provides the violent, destructive force essential to achieving the effects of maneuver. It suppresses, neutralizes, and destroys enemy forces by killing and wounding personnel and by damaging and destroying enemy equipment. The accuracy and volume of fire as required by the mission contribute to combat power. These results require effective target acquisition, command and control, logistics support, and tactical mobility that permit fire support assets to support maneuver.¹¹

Protection involves two priorities. First, it minimizes damage and losses from enemy action. Secondly, it safeguards the health and welfare of the

soldiers and insures the maintenance of equipment and weapons. Protection manifests itself in the fighting potential available at the moment of decisive combat.¹²

Leadership offers purpose, direction and motivation to forces. The leader's effectiveness in applying potential maneuver, firepower, and protection capabilities relative to that of the enemy leader determines overall combat power.¹³

According to Wass de Czege, superior combat power is achieved by maximizing friendly effects of capabilities while degrading those of the enemy. Appendix A (Combat Power Model) details the functions of each element of combat power.¹⁴ This model can be used to assess the efficacy of the fire base in increasing US firepower, maneuver, protection and leadership effects in counterinsurgency operations.

III. US Tactical Doctrine for Counterinsurgency Operations

US tactical doctrine for counterinsurgency operations reflects the tenets and imperatives contained in FM's 100-5 Operations, 100-20 Military Operations in Low-Intensity Conflict, and 90-8 Counterquerrilla Operations. Four major factors account for the linkage among the ideas expressed in these manuals. First, combat considerations govern tactical operations when the US employs military force directly against hostile forces in conflict situations and in war. Second, military confrontations may involve

simultaneously peaceful competition, conflict, and war. Third, military operations in LIC are designed to prevent escalation of tensions into war. Finally, US forces conducting counter guerrilla operations provide sufficient internal security to enable the host government to conduct counterinsurgency programs and to pursue national goals. ¹⁵

Consistent with these conditions, the four tenets (initiative, depth, agility and synchronization) and the seven combat imperatives (ensure unity of effort; direct friendly strengths against enemy weaknesses; designate and sustain the main effort; sustain the fight; move fast, strike hard, and finish rapidly; use terrain and weather; and protect the force) of Airland Battle Doctrine lead to tailored combat operations appropriate to a counterinsurgency environment.¹⁶ Operations also must comply with imperatives of low-intensity conflict (political dominance, unity of effort, adaptability, legitimacy and patience) and specific requirements peculiar to counterinsurgency (be appropriate, be justifiable, use minimum force, do maximum benefit, and do minimum damage).¹⁷

These factors are translated into the operating principles of intelligence, tactical situation, flexibility, mobility, minimum use of force, patience and reserves.¹⁸ These, in turn, shape three major counter guerrilla operations - strike campaigns,

consolidation campaigns and operational support base (OSB) defense. All three operations incorporate similar offensive and defensive tactics and techniques. Furthermore, doctrine implies that the operational support base (OSB), the current doctrinal term for fire base, will aid in the acquisition of superior combat power by facilitating maneuver, firepower, and protection.¹⁹

Strike campaigns are a series of combat operations targeted against guerrilla forces and bases in contested or insurgent controlled areas. Brigade sized strike forces are organized as self-sufficient task forces launching from operational support bases in remote areas. Operations are directed against guerrillas situated outside of friendly controlled areas or in locations undergoing consolidation. Strikes are usually of relatively short duration, ranging from days to several weeks. To destroy enemy forces, bases, and supplies, tactical units conduct offensive operations such as raids, reconnaissances in force, ambushes, hasty or deliberate attacks, and pursuits. Units also carry out defensive operations to secure fire bases, vital routes, key terrain, and critical facilities.²⁰ Artillery assets positioned at the OSB provide fire support in accordance with the principles and requirements described in FM's 100-5, 100-20, and 90-8.

US forces carrying out consolidation campaigns support civil and military internal defense and development programs.²¹ Tactical units engage in offensive and defensive operations to establish, regain or maintain control of specific territory. Brigades and subordinate units support preparation and offensive phases of consolidation campaigns through offensive operations to clear an area of guerrillas, eliminate enemy forces and base areas, and secure key installations and routes. In the development and completion phase, counter guerrilla forces conduct offensive and defensive operations and bolster intelligence, psychological, populace and resource control, civil affairs, and advisory assistance activities.²² OSB's support consolidation campaign operations by facilitating command and control of maneuver forces, providing fire support, and securing vital routes and key terrain. ²³

Defense and security of tactical units and installations are integral parts of combat missions. For purposes of this study the term "fire base defense" applies to two interrelated requirements. First, there is the need to secure facilities in areas generally controlled by friendly forces from attack by guerrillas. Second, it involves securing the OSB (fire base) from attack when it is established to support strike and consolidation campaign operations. FM 90-8

specifies requirements for the establishment and defense of the OSB. It must be large enough to contain security, artillery, headquarters, and service support personnel and equipment; located away from population centers to minimize security problems and civilian casualties in the event of enemy attack; and supported by at least two lines of communications.²⁴ The OSB also must provide for all-round local security, overhead cover, early warning, mutual support among bases, defense in-depth, and responsiveness to enemy attack.²⁵ Artillery units deploy to an OSB in order to provide maximum area coverage with available weapons while retaining the capability to mass fires. An important factor in planning indirect fire is the concept of "minimum essential force," which might result in little or no fire fire support for maneuver units. Owing to such restrictions, the maneuver force must be prepared to operate without indirect fire. ²⁶

Current counter guerrilla doctrine reveals the Army's sensitivity to the critical elements of a successful counterinsurgency. The OSB emerges as an important link in the process of generating and projecting combat power in a counterinsurgency.

IV: The Fire Base Concept in Vietnam

Strategic and operational considerations influenced the manner in which tactical units employed the fire base concept during the Vietnam War.

President Johnson's aim in escalating US involvement in the conflict was to convince North Vietnam and its sponsors that it was futile to continue the war in South Vietnam. To this end he directed the US military to use minimum force in a geographically constricted area.²⁷

US forces subsequently fought two parallel wars: a main force or conventional war with the North Vietnamese Army (NVA), conducted largely in uninhabited border areas, and a "village war" that included a counterinsurgency against the People's Army of Vietnam (PAVN) or Viet Cong (VC). In both the main force war and counterinsurgency, the enemy employed guerrilla tactics. PAVN reliance on guerrilla tactics was consistent with Maoist insurgent strategy and was a necessity. NVA regulars, on the other hand, viewed guerrilla tactics as the most effective tactical option during most of the war.²⁸

Commander Military Assistance Command Vietnam (MACV) General William C. Westmoreland responded to strategic guidance and operational requirements existing in late 1965 by directing that US ground forces conduct tactical offensives in the context of a mobile strategic defense. Offensive operations oriented on supporting internal defense and development projects by placing US forces between the Viet Cong and

coastal villages and by committing US forces against North Vietnamese forces moving into South Vietnam.²⁹

By August 1966, senior US military officials accepted that allied forces would conduct a war of attrition.³⁰ This led tactical commanders to quantify tactical success in terms of "body counts."³¹ While US Army doctrine at that time stressed fire and maneuver techniques during enemy contact, political emphasis on inflicting high enemy casualties while minimizing friendly casualties required a modification of tactics. Tactical maneuver was risky and increased the likelihood of high friendly losses. Commanders at all levels concluded that maneuver forces should find and fix the enemy and employ indirect and aerial fires before attempting to maneuver.³²

Tactical operations conducted during the Vietnam War are similar to those described in the current edition of FM 90-8. In strike and consolidation campaigns, US forces conducted search and destroy missions, spoiling attacks, sweeps, raids, and ambushes. To support consolidation campaigns, US forces conducted operations to eliminate the enemy in selected areas and to secure key facilities and roads.³³

To support operations, corps or division commanders directed the establishment of fire bases.³⁴ After choosing a site, a commander inserted a platoon sized security force and a combat engineer party of

approximately six to ten men to construct the base. Using demolitions, hand tools, and, when available, bulldozers, the engineers and infantry constructed bunkers, guns pits, berms, and wire barriers. Once the gun positions were prepared, artillery units deployed and prepared for firing within five hours. In most instances, defending infantry were dug in with overhead cover by nightfall of the first day.³⁵

Fire bases normally remained in position for a period of three to fourteen days. On many occasions, lack of mobility of weapons, the mission of the unit or the importance of a location caused the base to become semi-permanent.³⁶ Artillery units operating from fire bases usually were equipped with the 105mm howitzer. In some instances, 155mm howitzer units occupied fire bases. In addition, 155mm howitzers, 8in. guns, and 175mm guns operating from mutually supporting fire bases or semi-permanent bases augmented the fires of direct support artillery units.³⁷ Though land routes were the primary means of resupplying fire bases, units also used helicopter transport and, in some instances, river vessels.

Defense of the fire base required integrating direct, indirect, and aerial fires. Artillery units devised several techniques for this purpose. They prepared sites to provide 6400 mil coverage and employed beehive rounds, counterbattery fire, and

killer junior/senior firing techniques (high explosive projectile fired from 105mm or 155mm- killer junior - or 8in - killer senior - with the time fuze set at minimum time and at minimum howitzer elevation).

Artillery tubes were arranged in star, diamond, square, rectangular, or comparable patterns to eliminate the need for adjusting the pattern of effects on the ground (Appendix B- Artillery Organizations; Appendix C - Artillery and Mortar Weapons Capabilities).³⁸ For surveillance and target identification, units employed patrols, observation towers, defoliants, aerial observation, PPS-4 and PPS-5 ground surveillance radars, AN/TPS-25 or AN/TPS-58 surveillance radar, AN/MPQ-4 countermortar radar and electronic sensors (Appendix D - Field Artillery Target Acquisition and Ground Surveillance Radar Capabilities).³⁹

To support operations aimed at blocking enemy infiltrators, artillery units conducted harassment and interdiction (H&I) missions against suspected enemy positions and routes. Proponents contended that the NVA and VC feared such fire because it inflicted casualties and damage. Midway through the war, senior artillery commanders revised the concept and redesignated it intelligence and interdiction (I&I) fire. Citing evidence that H&I fire was minimally effective, logistically costly and dangerous to friendly forces and civilians, they directed that

artillery units obtain two or more sources of intelligence on a perspective target before carrying out an unobserved mission.⁴⁰

Though President Richard Nixon's July 1969 policy of "Vietnamization" changed the emphasis of US operations and modified the function of the fire base concept slightly, occupation procedures, construction techniques, and defensive measures remained essentially unchanged. The priority of US military objectives became Vietnamization, minimize US casualties, withdraw US units, and conduct American combat operations.⁴¹ To accomplish these aims, US tactical units conducted consolidation campaigns in which they attacked enemy sanctuaries and defended key routes and installations.⁴² The fire base continued to support infantry operations, surveillance, and interdiction efforts. Furthermore, increased political and operational pressure to minimize casualties increased the importance of the fire base in protecting American soldiers. This, in turn, encouraged units to remain close to the fire base, curtail ground maneuver, and rely on indirect fire to destroy enemy forces.⁴³

A. The Fire Base Concept and Strike Campaigns

The 4th Infantry Division's Operation Sam Houston, 1 January - 5 April 1967, was a typical division sized strike campaign. Divisional units conducted operations in the rugged terrain and sparsely

populated western highlands of Pleiku Province along the Cambodian border to detect and destroy NVA/VC infiltration and concentrations and to secure road networks and engineer construction and resettlement projects. The area of operations was approximately 130 kilometers X 80 kilometers (Map A - U.S. Military Presence in Vietnam; Map B - Military Operations in South Vietnam - 1967; Appendix E - Operation Sam Houston Area of Operations; Tabs 1-3, Appendix E - Fire Bases Supporting Operations in Operation Sam Houston Area of Operations - Northern, Southern, and Eastern Sectors).⁴⁴

Enemy regimental and divisional units numbering approximately 10,000-15,000 troops took advantage of the triple canopy jungle to establish bases and to conceal infiltration routes. Restrictions on US ground operations in neighboring Cambodia permitted NVA/VC forces to operate with impunity along the border.⁴⁵

The division deployed in a five phased operation that began with the movement of two brigades during Phase I, 1 January -14 February, to screen the Cambodian border, secure highway 19E from Pleiku to Mang Yang pass, and conduct search and destroy missions west of Se San and Nam Sathay Rivers. Phase II, 15 February - 21 February, was a branch of Phase I that developed when the division detected enemy forces infiltrating west of the Nam Sathay River. Phase III,

22 February - 15 March, was a sequel to earlier operations with one brigade continuing operations in the Se San and Nam Sathay River valleys and with a second brigade operating west of Nam Sathay River. Phase IV, 16 March -28 March, was another sequel, with the two brigades shifting units north, south and east to find and destroy enemy forces. During Phase V, 29 March - 5 April, 4th division forces shifted operations to the east, conducted patrols in hamlets adjacent to Pleiku, and began displacement from the area of operations.⁴⁶

Fifteen changes to the division task organization in conjunction with the establishment of numerous fire bases throughout the operation attest to the critical role that the fire base concept played in generating combat power by enhancing maneuver, firepower, and protection effects. The fire bases enhanced maneuver effects by supporting division mobility, intelligence capabilities, management of resources and command and control (Appendix E -Operation Sam Houston Area of Operations and Tabs 1-3 - Fire Bases Supporting Operations in Operation Sam Houston Area of Operations - Northern, Southern, and Eastern Sectors). During Phase II, 15-21 February, for example, the division commander responded to infiltration of enemy forces west of the Nam Sathay River by committing two infantry battalions into fire bases in an area west of the

river. These forces subsequently made contact, employed artillery batteries positioned at fire bases, maneuvered against the enemy and inflicted heavy casualties upon NVA/VC forces.⁴⁷ In Phase Three, 22 February - 15 March, maneuver and artillery units displaced to fire bases located in the vicinity of the Se San and Nam Sathay Rivers to block likely enemy exfiltration routes while other units maneuvered to destroy enemy forces.⁴⁸ In most instances, units occupied fire bases for periods of a few days to two weeks. Owing to the available road network and the limited number of landing zones, the division relied primarily on land lines of communications and used helicopters as a secondary means of transport.⁴⁹

The fire base concept accentuated firepower, maneuver, and protection effects by providing forward logistics bases for supply and services, maintenance, and medical support. Forward logistics bases initially were located at Fire Base LZ 3T and Fire Base Oasis and were subsequently repositioned to support the scheme of maneuver (Appendix E).⁵⁰ Collocating supply and maintenance activities with fire bases protected supplies and support personnel and facilitated responsive support for maneuver units. A liability of this approach, however, was the tendency of units operating from bases for more than week to stockpile

quantities of supplies and to insert nonessential administrative personnel. This, in turn, reduced divisional agility by increasing airlift requirements for displacing units. It also risked higher casualties during enemy attacks of fire bases.⁵¹

NVA/VC assaults against 4th Division fire bases were limited to mortars and snipers. The fire base enhanced protection effects by providing over head cover for all personnel and sensitive equipment.⁵² Infantry patrolled out to a distance of 1000 meters to reduce the threat of enemy attack.⁵³

The fire base was instrumental in accentuating firepower effects. As each unit displaced to new locations, mutually supporting fire bases containing single and multiple batteries supported infantry forces and permitted the massing of fire from one or more bases. Divisional units received additional fire support from a 175mm battery at Duc Co, an 81mm battery with four tubes at New Plei Djereng, batteries of 175mm/81mm at Oasis and Plei Me, and a battery of 105mm self-propelled howitzers firing from positions along highway 509.⁵⁴ The long range, accurate, and highly lethal 175mm and 81mm guns provided defensive fires 150-2000 meters to the flanks of friendly forces in bunkers, suppressed enemy anti-aircraft and mortar fire, and conducted H&I fires along the Cambodian border.⁵⁵ US Air Force aircraft providing immediate

and preplanned strikes augmented the fires of artillery units located at fire bases.⁵⁶

The fire base concept was critical to target detection and synchronization of supporting fires. Positioning AN/MPQ-4 countermortar radars in fire bases along the Cambodian border permitted friendly forces to undermine the effectiveness of enemy fires directed against US forces.⁵⁷ To synchronize artillery, air and maneuver activities, the divisional artillery headquarters operated a combined forward tactical artillery operations and fire support coordinating center collocated with the division forward tactical command post at LZ 3T.⁵⁸

Enemy tactics affected 4th Division's ability to generate combat power. NVA/VC knowledge of the terrain, sanctuaries in Cambodia, and understanding of American tactics offered them advantages in foot mobility.⁵⁹ They exploited this by identifying locations of fire and patrol bases, placing them under surveillance, and subsequently ambushing company and platoon sized forces. During such attacks, the NVA/VC maneuvered to encircle friendly units. By operating within minimum safety distances of friendly weapons, the enemy constrained US artillery and aerial units supporting American forces. In a similar vein, the NVA/VC, recognizing that 3000m was the minimum safety distance for B52 bomber strikes, often positioned

himself close to fire bases. 4th Division artillery units countered this by employing harassment and interdiction (H&I) fires.⁴⁰

The fire base concept's positive impact on firepower effects supported efforts of tactical commanders to increase the relative combat power of their units. They responded to the NVA/VC capability to rapidly move forces from Cambodian sanctuaries, the limited number of landing zones that could support insertion of friendly reinforcements, and the enemy's tactic of ambushing landing zones by directing that companies operate within 1-3 hours (2-4 kilometers) cross country movement from one another.⁴¹ Dense vegetation and difficult terrain degraded US mobility, observation, fields of fire and contributed to friendly units becoming decisively engaged at distances of 10-300 meters.⁴² Exacerbating these difficulties was the tendency of American soldiers to carry 40-60 pounds of essential and nonessential equipment that degraded individual mobility.⁴³ To overcome the enemy's potential advantages in mobility and in initiating contact, division leaders relied on superior US firepower positioned at fire bases. After intensive artillery, mortar, and air strikes against known or suspected enemy positions, tactical elements maneuvered to determine the disposition of enemy forces and

effects of supporting fires and to destroy remaining forces.⁶⁴

Throughout Operation Sam Houston, the fire base concept was an integral component of the 4th Division's concept of operation. Between mid-February and the first week of April, it fought eleven major engagements against battalion or larger sized enemy forces and numerous smaller engagements.⁶⁵ At the conclusion of the operation on 5 April, the division reported 733 enemy and 173 friendly killed.⁶⁶

B. Fire Base Concept and Consolidation Campaigns

The 173d Airborne Brigade's actions at Fire Support Base (FSB) Floyd on 29 August 1970 typifies successful use of a fire base to support consolidation operations. US personnel supported local internal development projects by integrating sensors, radar and other target acquisition techniques with direct and indirect fires to interdict enemy forces infiltrating through a valley in northern Binh Dinh province (Map A - U.S. Military Presence in South Vietnam; Appendix F, FSB Floyd, 29 August 1970).⁶⁷ Fire Base Floyd was designed to enhance friendly firepower and protection effects while degrading the enemy's maneuver effects.

Shortly before daylight on 29 August, 3rd Bn/2NVA Regiment entered the valley from the South and advanced along a road toward Hoai An District, where they intended to occupy base camps, replenish rice supplies,

and conduct operations against allied forces. Sensors and radar detected the movement and artillery units located at FSB Floyd struck enemy forces along the route. At first light, US ground forces patrolled the area and discovered six enemy KIA, one WIA and blood trails. A prisoner captured the following month reported that the artillery fire had rendered the enemy battalion combat ineffective for the next several months.⁴⁸

The 101st Airborne Division's employment of the fire base concept in support of consolidation campaign operations in Thau Thien Province, 1-23 July 1970, proved less successful. On 1 April, it initiated Operation Texas Star. Building on the gains of a preceding operation, Randolph Glen (7 December 1969 - 31 March 1970), the division intended to support Vietnamization and pacification by finding and destroying enemy forces moving through the A Shau Valley towards the populated lowlands to the east (Map A - U.S. Military Presence in Vietnam; Map D - Military Operations in South Vietnam - 1970-1973).⁴⁹

The 3d Brigade established FSB Ripcord on 1 April as part of a network of mutually supporting fire bases (Appendix G - FSB Ripcord and Vicinity, July 1970 and Appendix H - Fire Bases Supporting FSB Ripcord, July 1970). During 1-23 July, elements of the 6th, 29th, and 803d NVA regiments attacked to encircle 2/506

Infantry, 2/501 Infantry, two troops from 2d Squadron, 17th Cavalry, and two batteries, 2/319th Artillery (105mm) operating at FSB Ripcord. Enemy forces entrenched themselves in high ground 1000-4000 meters around the fire base and used their positions to ambush US forces and to shell US bases.⁷⁰

American forces operating in the Ripcord area ostensibly enjoyed advantages in firepower and protection effects. The two direct support artillery batteries were reinforced by 105mm, 155mm, 8in and 175mm artillery pieces positioned at four adjacent fire bases, tactical air, attack helicopters and aerial artillery.⁷¹ An AN/MPQ-4A radar located at Ripcord supported counterbattery fire.⁷² In keeping with past practices, units defending the base had overhead cover and an effective defensive plan that could blunt enemy ground assaults.⁷³

In spite of these potential combat power effects, US forces were vulnerable to enemy direct and indirect fire throughout July:

1. 1 July: Beginning in the morning and continuing throughout the day, enemy forces employed indirect and direct fire against FSB Ripcord, wounding 15 US soldiers.

2. 18 July: A CH-47 helicopter carrying a slingload of 105mm howitzer ammunition was struck by 12.7mm machine gun fire during its approach to the fire base. It crashed into a 105mm ammunition storage area and caused an explosion that damaged six howitzers and the AN/MPQ-4 radar.⁷⁴

These examples indicate that US forces had difficulty using potential advantages in firepower to prevent

enemy attacks. This stemmed partly from shortcomings in US maneuver effects. Though both US and NVA/VC forces possessed equal foot mobility, the enemy proved more adept at using the jungle environment to support his scheme of maneuver. US tactical operations, on the other hand, mirrored guidance of senior civil and military leaders during 1970 to avoid casualties. Infantry forces responded by maneuvering in close proximity of the fire base and by attempting to use indirect fire to break contact and to destroy the enemy.⁷³

The collective impact of these combat power effects was illustrated during the US attack of enemy forces defending Hill 1000, approximately 1 kilometer from FSB Ripcord (Appendix G):

At 070940 July, Company D made contact with a well fortified enemy . . . [on Hill 1000] . . . The company employed organic weapons, tube artillery, ARA, and tactical air strikes . . . but could not dislodge him from the Hill. Contact was terminated at approximately 1500 hours as Company D [withdrew], having suffered three killed and 19 wounded. The company confirmed six enemy killed Beginning at 0800 hours on 8 July, a two and one-half hour artillery and air preparation pounded Hill 1000 At 1030 hours, artillery fires were shifted, and Companies C and D [2/506] began the second assault on Hill 1000 Contact was terminated at 1300 hours, as [the companies withdrew] US casualties were two killed and four wounded On 14 July, Companies A and B and the Reconnaissance Platoon [2/501] . . . [supported by artillery, tactical air, and ARA] . . . [made another] attempt to eject the enemy. . . . Partial sweeps of the . . . area revealed 5 NVA KIA. The battalion (-) withdrew. . . .⁷⁴

The unwillingness of US commanders to press the attack and their decision to withdraw repeatedly after

suffering relatively light casualties revealed their reluctance to incur losses in disputes over insignificant terrain. In light of the US strategic situation this perspective is understandable. Yet, the inability of artillery and aerial fires to penetrate enemy bunkers made ground maneuver essential if enemy defenders were to be defeated. As a result, US units in the Ripcord area could not generate sufficient combat power to defeat the NVA/VC. By 22 July, the 3d Brigade and division commanders concluded that the cost and effort required to defend FSB Ripcord detracted from operations planned against enemy rear areas in the vicinity of FSB's Airborne, Goodman, and Bradley (Appendix H). Closing the fire base, they reasoned, would provide additional forces for attacking enemy base areas. Friendly forces subsequently displaced on 23 July.⁷⁷

C. Fire Base Concept and Fire Base Defense

In both consolidation and strike campaigns, the value of fire bases in protecting artillery and target acquisition resources, command and control, and reserve forces had to be weighed against the enemy's view of fire bases as targets for inflicting American casualties. US defenders recognized the dangers and devised techniques to improve the defensibility of fire bases. The successes US forces achieved in destroying the attacking enemy led some commanders to employ fire

bases to lure the enemy into attacking (baited attacks) or to employ them as the anvil or blocking force for offensive operations.⁷⁸

The 25th Infantry Division's defense of FSB Crook in Tay Ninh province between 052000 June and 072130 June 1969 demonstrates the utility of the fire base defense in generating combat power. FSB Crook was established 14 kilometers northwest of Tay Ninh City in April 1969 to interdict VC/NVA infiltration and to support divisional consolidation campaign operations (Map A - U.S. Military Presence in Vietnam; Map C - Military Operations South Vietnam, 1969).⁷⁹

B Company/3d Bn/22d Infantry and A Battery/7-11 Field Artillery (105mm) occupied the base and received additional field artillery support from a 155mm battery at FSB Washington, a one platoon 175mm battery at FSB St. Barbara, a one platoon 81mm battery at Tay Ninh Base Camp, and a one platoon 155mm battery at Cao Xa (Appendix I, Situation Overlay, FSB Crook, 5-7 June 1969). In addition, the commander of FSB Crook planned for the use of attack helicopters, Air Force gunships and close air support.⁸⁰

Documents captured in late May indicated that elements of the 88th NVA, 271st VC/NVA and 272d VC/NVA regiments were preparing for operations in the Tay Ninh area and that they intended to attack a US installation in June. Based on this intelligence, the 25th Division

prepared to bait enemy forces into attacking FSB Crook and to destroy them using artillery and aerial fires.⁸¹

At 2000 hours 5 June seismic sensors and AN/PPS-4 radar detected the movement of the 3d Bn/272D VC/NVA Regiment (approximately 200-300 men) moving one kilometer to the east and 500 meters to the west. Artillery units positioned at FSB Crook and at adjacent fire bases fired intelligence and interdiction (I&I) fires on the targets. As the enemy advanced towards the perimeter defense from the south and east, the direct support artillery battery employed the killer-junior technique. Throughout the attack, 175mm, 8in and 155mm artillery units at adjacent fire bases, AC-47 and AC-119 gunships, and attack helicopters struck the depth of the enemy formations. At dawn, B Company dispatched patrols, which made minor contact with withdrawing enemy forces and discovered 76 enemy dead. (Tabs 1-2, Appendix I - FSB Crook, 5-6 June 1969).⁸²

At 2000-2030 hours 6 June, sensors and radar detected the advance of 2d and 3d battalions/88th NVA regiment (430 men) northwest and east of Crook. Once again artillery from Crook and mutually supporting fire bases, Air Force gunships and attack helicopters targeted enemy forces.⁸³ Defenders defeated the two battalions attacking from the northeast and northwest. During their morning sweep of the area, A, C, and D Companies discovered 323 enemy bodies, 10 prisoners,

and over 40 weapons (Tabs 3-4, Appendix I - FSB Crook, 6-7 June 1969). Total casualties of both sides during the two day battle were 402 enemy killed and 10 prisoners and one US killed and seven wounded. The defenders of Crook succeeded in destroying nearly three enemy battalions.⁸⁴

The 25th Infantry Division's success in generating superior combat power at FSB Crook demonstrated that the fire base supported synchronization of intelligence and direct and indirect firepower. The incident underscored the importance of mutual support among fire bases, use of artillery in direct fire role, and value of integrating Air Force gunships, attack helicopters and artillery in simultaneous operations. FSB Crook also reflected American success in devising effective procedures and techniques for establishing fire base defenses.⁸⁵

V. Analysis of the Fire Base Concept in Vietnam

Huba Wass de Czege's combat power model provides the framework for assessing the relative combat power of US and NVA/VC tactical units.

A. Maneuver Effect

The fire base was instrumental in supporting the movement of American units in strike and consolidation campaign operations and in fire base defense. Operations conducted during Sam Houston and in the vicinity of FSB Ripcord relied extensively on superior

US air and ground vehicle mobility to displace, reinforce, resupply, and maintain forces on a nonlinear battlefield. Tactical units air assaulted or convoyed artillery resources into fire bases to support maneuver operations in remote areas and, in doing so, projected combat power into the depths of enemy controlled areas. The benefits maneuver units derived from fire bases compensated for any loss of surprise associated with establishing bases.⁶⁴ During Operation Sam Houston infantry and artillery units rapidly established new fire bases to prevent enemy exfiltration and to support the advance of adjacent units. Operations conducted at FSB Floyd and FSB Crook demonstrated that similar agility enhanced US defenses of vital routes and installations. One potential shortcoming identified during Operation Sam Houston was degradation of mobility resulting from the accumulation of excess supplies and insertion of nonessential personnel. FSB Ripcord's unimpressive support for ground maneuver reflected the negative affects of strategic and political decisions on tactical operations rather than deficiencies in the fire base concept.

In all of the case studies, the fire base provided a secure forward position for command and control and fire support. This in turn supported synchronization of direct and indirect fires against the enemy while

minimizing fratricide, civilian casualties, and collateral damage.

The impact of the fire base concept on PAVN and NVA maneuverability was mixed. The ability of US forces to project infantry and artillery units into communist controlled areas severely curtailed enemy freedom of movement, threatened his bases, and inflicted high casualties. Still, Sam Houston and operations at FSB Ripcord revealed that the enemy's knowledge and adroit use of jungle terrain and foliage, secure base areas in Cambodia, and understanding of American tactics contributed to superior mobility.²⁷ By hugging US forces and fire bases, enemy units hampered friendly efforts to employ indirect and aerial fires to interdict their movement.

B. Firepower Effect

In each instance, the positioning of artillery direction centers, controlling headquarters, and firing batteries at fire bases facilitated simultaneous and synchronized aerial, direct, and indirect fires. Firepower positioned at fire bases caused enemy casualties, interdicted his movement, disrupted his command and control, and threatened his base areas. Actions at FSB's Crook and Floyd demonstrated that artillery units could employ techniques such as intelligence and interdiction (I&I) fires to hinder enemy maneuver and indirect fire against US ground

forces and fire bases. Tactical units overcame potential deficits in firepower resulting from the dispersal of field artillery tubes to numerous fire bases by employing attack helicopters, aerial gunships, and tactical air. While rules of engagement, local policies, and requirements for political clearances reduced responsiveness of artillery units and, to some extent, the volume of fire, firing units demonstrated flexibility, imagination, and initiative in supporting maneuver units.⁸⁸

Fire bases supported efforts of tactical units to overcome technical limitations of weapons and equipment and political restrictions on employment of firepower. The light-weight, easily transported and maintained 105mm howitzer was common to most artillery units located at fire bases. Unfortunately, its short range contributed to additional requirements for establishing supplementary fire bases to achieve mutual support; its lack of penetrating power against bunkers and targets in dense jungle limited its effectiveness.

Consequently, US ground forces relied on the more lethal and longer range 155mm (14.6km), 8in (17km), and 175mm (33km) artillery pieces to augment the fires of 105mm equipped units, to facilitate mutual support among fire bases, and to fire counterbattery and I&I missions (Appendix C, Artillery and Mortar Weapons Capabilities). While commanders could position 155mm

howitzers at fire bases using ground transportation or CH-54 helicopters, they usually located 81mm and 175mm equipped units at semi-permanent bases.⁸⁹ In all of the case studies, the artillery units equipped with long range guns effectively supported maneuver units and fire bases.

The jungle environment also affected the adjustment and control of fires. To minimize the potential for fratricide and civilian casualties, artillery units adhered to rules of engagement and local policies (Appendix J, Rules of Engagement). To avoid casualties resulting from land navigation errors of maneuver units, artillery units often fired illumination or smoke rounds to assist leaders in confirming their location.⁹⁰ Providing qualified fire direction center personnel for fire bases was a significant challenge for artillery units. Large areas of operations and extended distances between battalions and their batteries increased the importance of battery fire control centers. To meet this demand, artillery units trained sufficient numbers of personnel to operate direction centers at various fire bases on a 24-hour basis.⁹¹

Effective target acquisition was essential in order to translate firepower potential at fire bases into actual combat power. While patrols, aerial observation, and electronic surveillance proved

valuable, there were significant shortcomings. In many cases, fire support planners at fire bases employed imprecise H&I or I&I firing procedures to target likely enemy firing positions.⁹² PPS-4 and PPS-5 ground surveillance radars were short range, had limited scanning capabilities, and were degraded by the jungle. (Appendix D, Field Artillery Target Acquisition and Ground Surveillance Radar Capabilities). Though longer range, AN/TPS-25 and AN/TPS-58 surveillance radars suffered from similar limitations in the jungle. The AN/MPQ-4 was even less effective. Its 445 mil sector of scan and inability to locate low-trajectory rockets limited its utility. A study in 1969 revealed that its success rate in 1759 attacks over a six month period was 19.44%.⁹³ NVA/VC forces recognized the limitations of friendly radars and often maneuvered to avoid detection. While seismic, magnetic, and acoustic sensors were valuable in augmenting other surveillance systems, there were not enough of them.⁹⁴ Maximizing the effectiveness of target acquisition equipment required tactical units to organize to provide mutual support among radars, redundancy in surveillance means, and training for crews.

C. Protection

By limiting exposure and damage of friendly forces the fire base concept contributed significantly to the generation of combat power. In all of the case

studies, fire bases were forward locations for critical supply, maintenance, personnel and medical activities. Furthermore, US defenders of fire bases in Operation Sam Houston and at FSB's Floyd, Ripcord, and Crook minimized friendly losses while inflicting high enemy casualties. In each instance, US forces constructed defensive positions with overhead cover and developed integrated fire plans prior to nightfall of the first day of occupation. Defenses incorporated ground flares, claymore mines, wire entanglements, anti-rocket cyclone fences, fougasse, small arms and crew served weapons, mortars, artillery, attack helicopters, Air Force gunships and tactical air support.⁷⁵ Artillery units provided 6400 mil coverage and used bee hive rounds, killer-junior/senior techniques and artillery located at other fire bases to support fire base defenses. Though often ineffective, H&I and I&I fires diminished the risks of enemy forces clinging to fire bases and friendly ground forces.

A shortcoming of the fire base concept was compromising stealth, and consequently, making it easier for the enemy to track friendly forces. During Operation Sam Houston and at FSB Ripcord the enemy identified landing zones and fire bases, placed them under surveillance, and attacked them with indirect fire, snipers, ambushes, and ground assault. To minimize the effectiveness of enemy activities, 4th

Division forces established fire bases quickly, used them for a short period ranging from a few days to a few weeks, abandoned them, and reoccupied them as necessary during subsequent operations. Furthermore, 4th Division units deceptively emplaced fire bases during each phase of the operation to increase enemy uncertainty as to US intentions.⁹⁴

More serious difficulties arose when bases remained in position for longer periods of time. In many instances, the enemy viewed fire bases as lucrative targets to inflict US casualties. In the case of FSB Ripcord, for example, the NVA surveyed the area between April and July. The enemy subsequently advanced into the Ripcord area and out performed US units in several actions. At FSB Floyd and FSB Crook, on the other hand, US forces exploited the threat of enemy surveillance and assaults by positioning forces to "bait" the enemy into attacking and then destroying them with superior US firepower.

D. Leadership

The degree of effectiveness of the fire base concept in each case study was dependent on the quality of tactical leadership. In almost every instance, tactical leaders demonstrated technical proficiency, understanding of friendly and enemy unit capabilities, dedication, and sensitivity to battlefield conditions. During Operation Sam Houston, commanders adroitly

positioned infantry and artillery units to fix and destroy enemy forces. Under their direction, units displayed agility and initiative; leaders demonstrated an ability to synchronize artillery fires, tactical air and ground forces to attack the enemy in depth. At FSB's Floyd and Crook, leaders cleverly employed target acquisition equipment and firepower to generate superiority in combat power to interdict and defeat enemy formations.

Though tactical leaders at FSB Ripcord were no less competent than those described above, the political and strategic emphasis on minimizing friendly casualties during 1970 diminished maneuver effects and accentuated the importance of firepower. Unfortunately, uncertainty over precise enemy locations and limitations of weapons and surveillance equipment undermined this effort.

VI. Conclusion

This study indicates that the fire base was instrumental in generating and projecting US combat power in offensive and defensive operations in Vietnam. In addition to facilitating the movement of maneuver, artillery, and logistical units into an area of operations, it enhanced firepower and protection effects. Once inserted, forces conducted strike campaigns, consolidation campaigns, and fire base defense.

Tactical units developed techniques for rapidly displacing infantry and artillery units to new fire base locations to block enemy exfiltration routes and to interdict enemy movement. By integrating bunkers, wire, mines, target surveillance equipment, direct fire weapons, artillery, attack helicopters and tactical air, defenders protected personnel and equipment from enemy indirect fire and ground assaults. Such security permitted controlling headquarters and artillery direction centers to monitor the tactical situation, implement branches and sequels to on-going operations, and insure that the application of firepower complied with rules of engagement.

While maneuver is the dynamic element of combat, firepower provides the destructive force essential to achieve the effects of maneuver. Though US firepower and target detection devices contributed to high enemy losses in Vietnam, there were constraints on their effectiveness. Limitations of ranges of howitzers and of penetrating power of artillery rounds degraded the ability of US forces to destroy enemy forces moving in triple canopy jungle or hidden in bunkers. Surveillance devices suffered similarly with limitations in range and sectors of scan. The politically motivated decision in 1969 to minimize maneuver in order to reduce US casualties exacerbated these problems by further

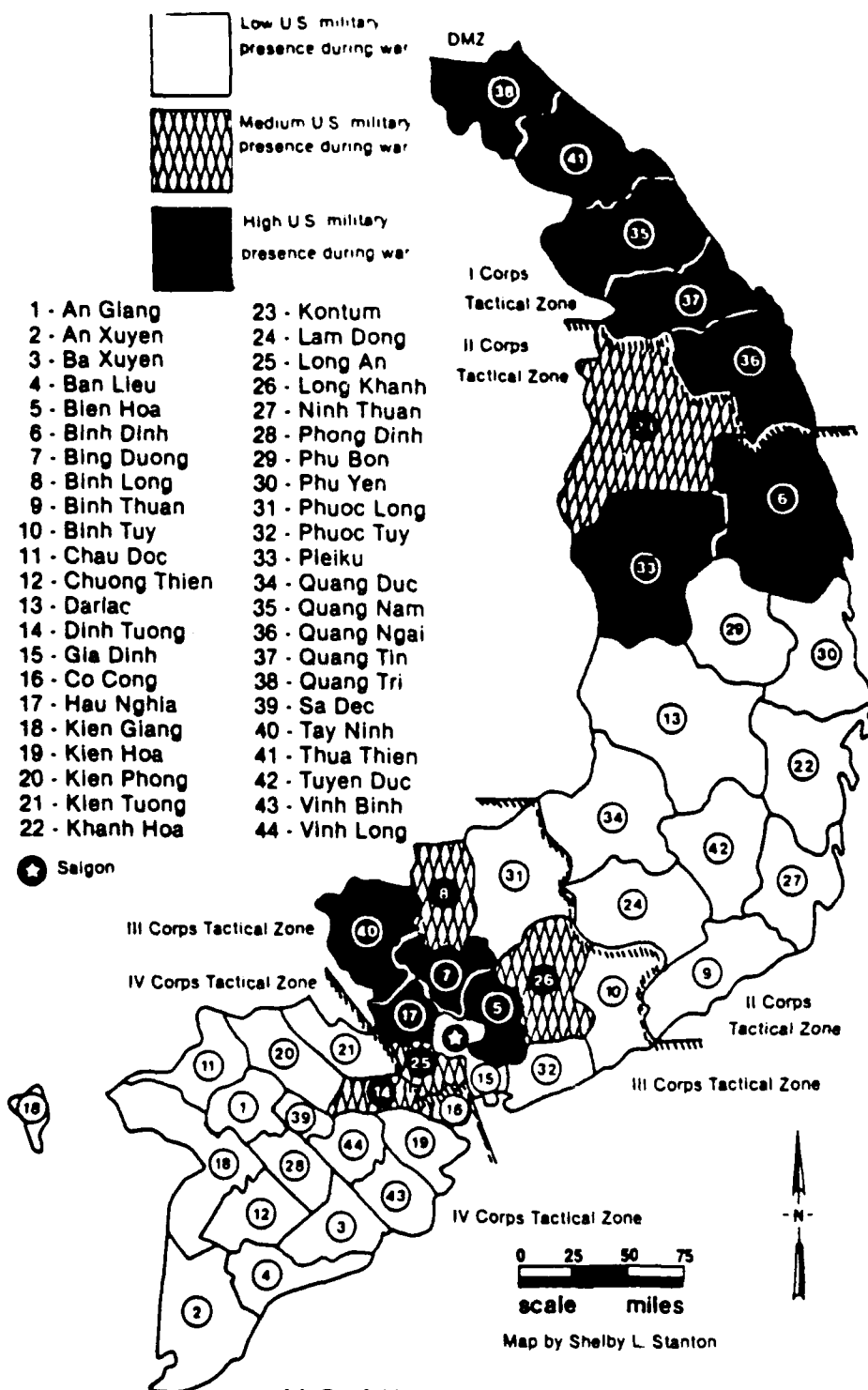
reducing relative US combat power. Efforts to replace maneuver effects with firepower proved inadequate.

These issues provide important insights for contemporary US counter guerrilla operations. Current counterinsurgency doctrine as outlined in FM's 100-20 and 90-8 effectively integrates proven counter guerrilla techniques with commonly accepted theoretical perspectives on counterinsurgency warfare.⁹⁷ In this context the OSB/fire base remains a viable technique for projecting combat power in counter guerrilla operations. Commanders must link this effort with the capabilities of weapons, equipment, and personnel. The 105mm howitzer, AN/MPQ-4, An/PPs-5, AN/TPS-25, AN/TPS-58, and ground sensors remain in the inventory and exhibit limitations comparable to those observed in Vietnam. While improved weapons, munitions and surveillance devices may offer maneuver units opportunities to strike targets with more precision and destructiveness, they will be similarly degraded in a jungle environment.⁹⁸

Tactical success in future counterinsurgencies requires US tactical commanders to understand mechanisms for transforming combat power potential into actual combat power. This must be accomplished in accordance with the requirements spelled out in current counterinsurgency and counter guerrilla doctrine. After designing concepts of operation that incorporate

maneuver and firepower restrictions and reflect limitations of weapons, equipment, and people, commanders must marshal available and allowable combat power to detect and destroy enemy forces. The OSB/fire base concept supports these efforts by providing a secure location for command and control, logistics support, surveillance, and, when permitted, fire support. Commanders should recognize, as did those in the 4th Division during Operation Sam Houston and at FSB's Floyd and Crook, that the fire base is integral to offensive and defensive actions. In the end, success hinges on the ability of tactical leaders to innovate and improvise and to imaginatively and audaciously apply doctrine in support of US counterinsurgency strategy.

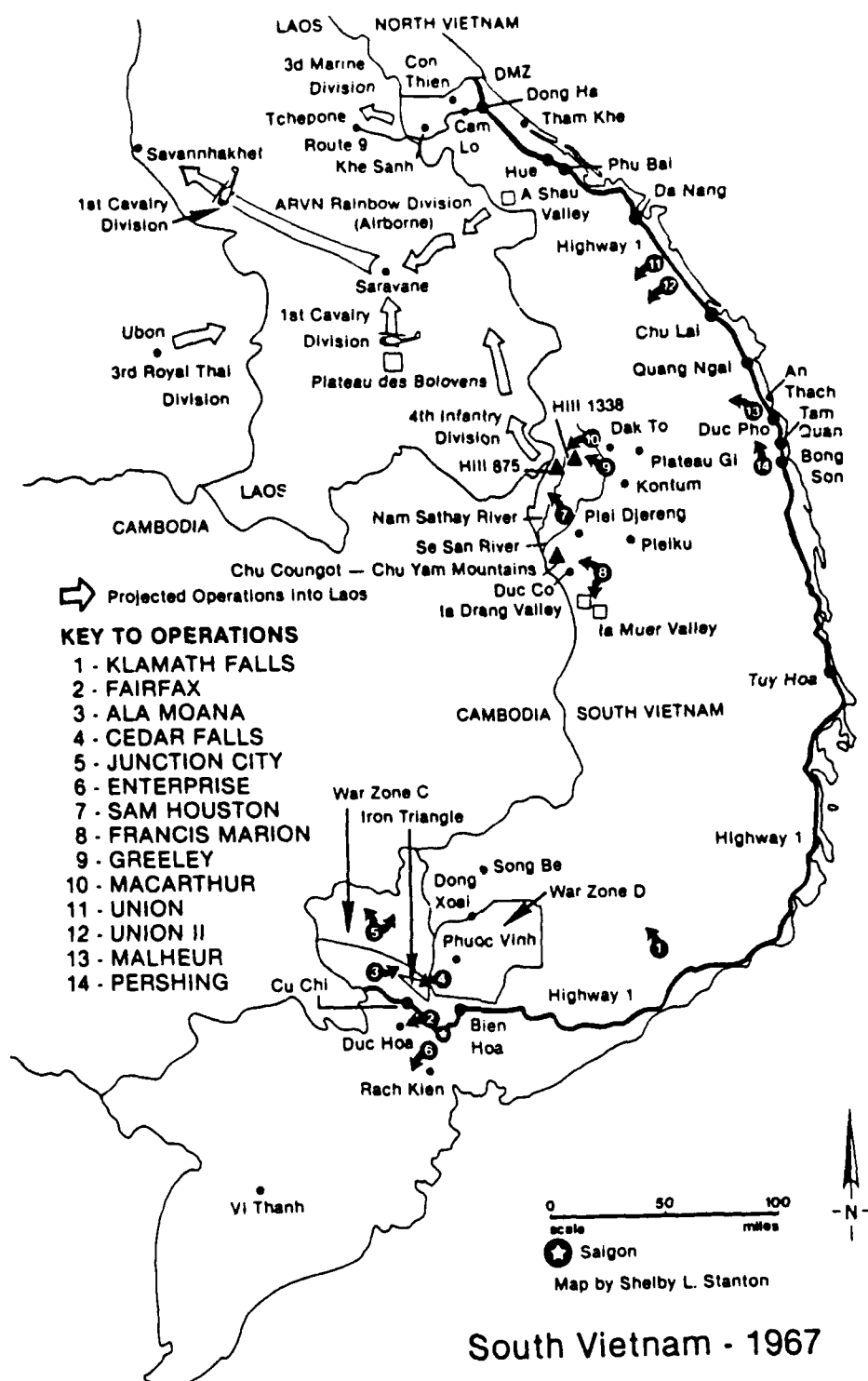
Map A: U.S. Military Presence in Vietnam



U.S. Military Presence in Vietnam

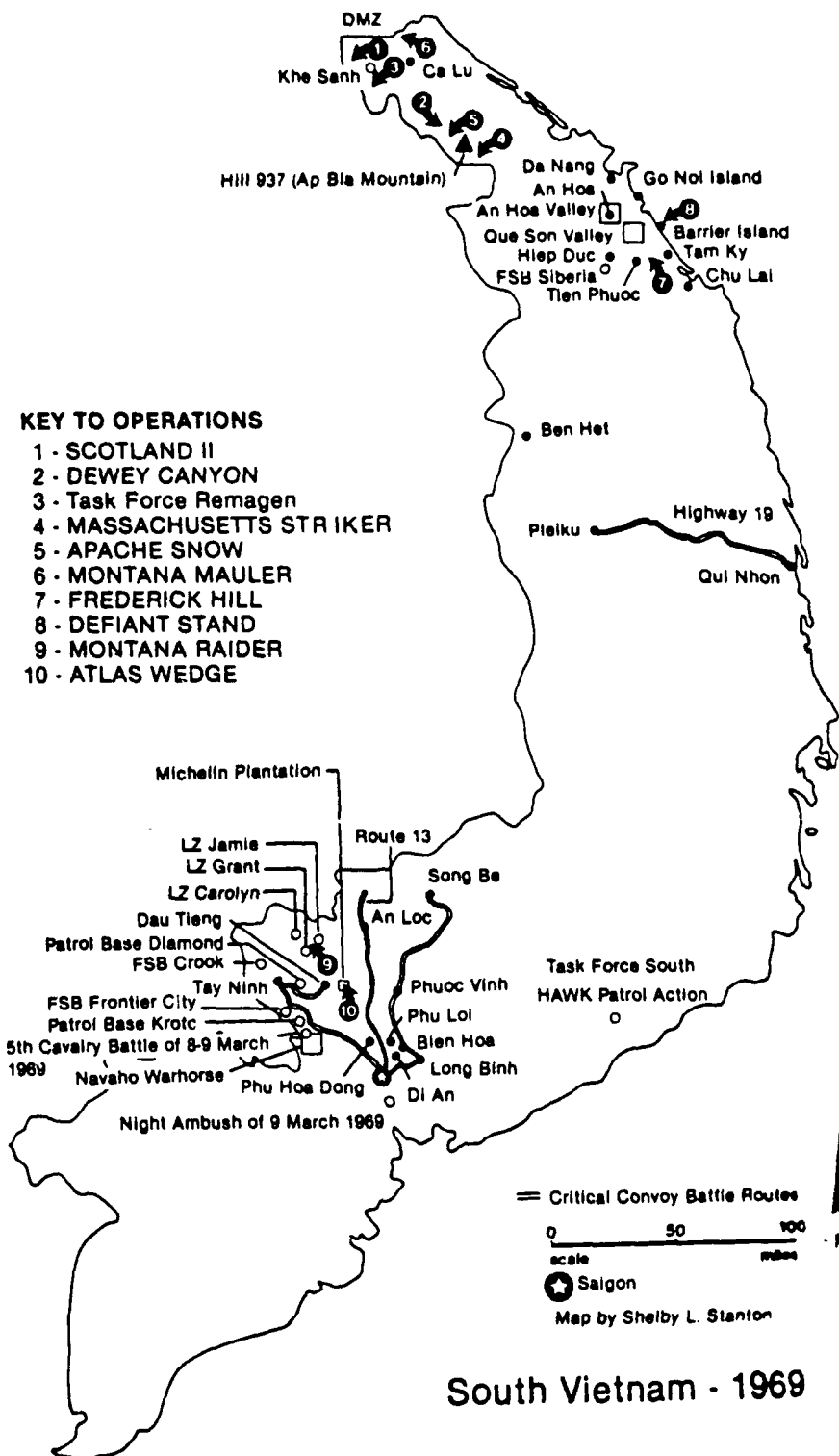
Source: Shelby L. Stanton, *The Rise and Fall of an American Army: U.S. Ground Forces in Vietnam, 1965-1973* (Novato, California: Presidio Press, 1985), p. 369.

Map B: Military Operations in South Vietnam - 1967

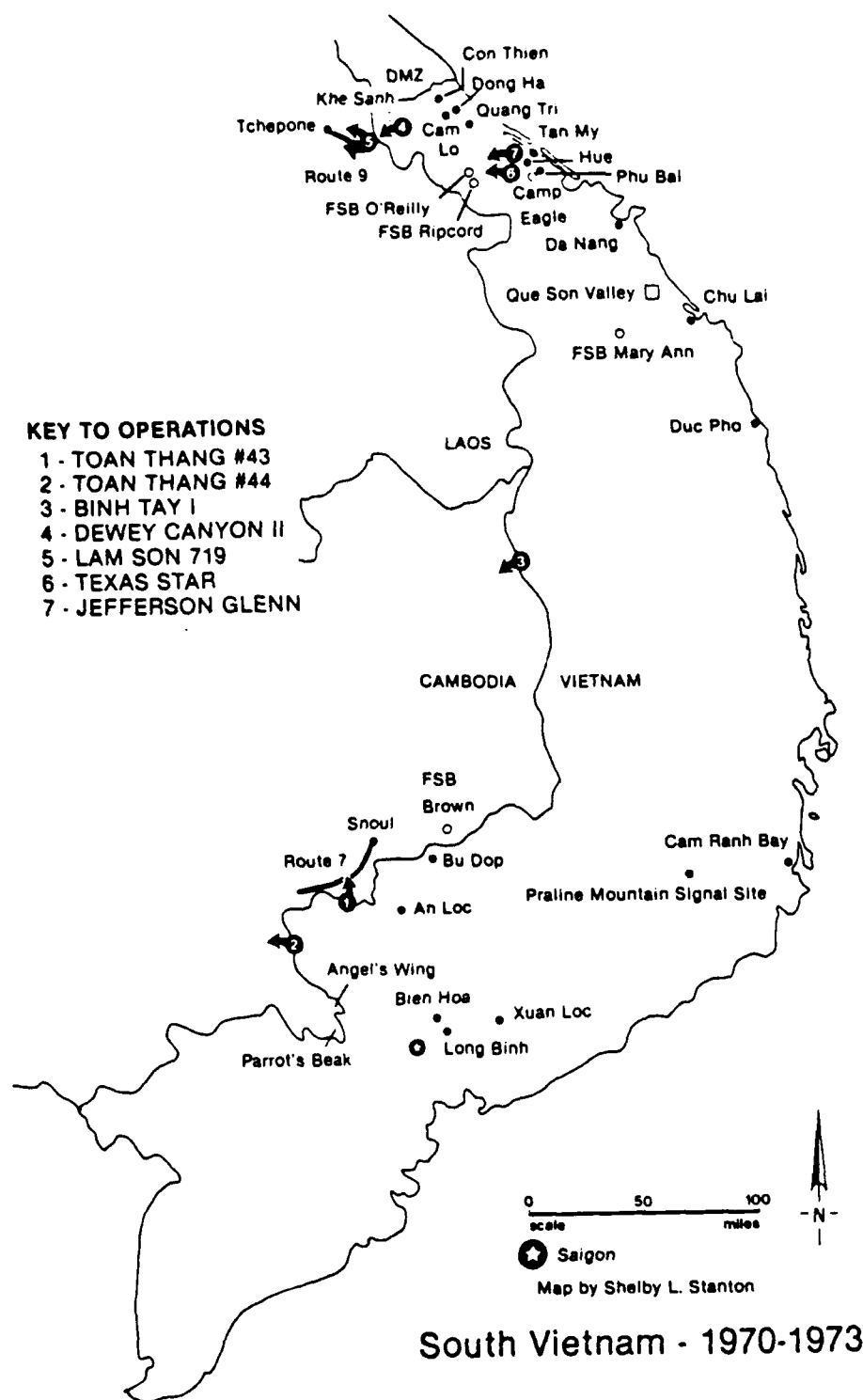


Source: Shelby L. Stanton, *The Rise and Fall of an American Army: U.S. Ground Forces in Vietnam, 1965-1973* (Novato, California: Presidio Press, 1985), p. 133.

Map C: Military Operations in South Vietnam - 1969



Map D: Military Operations in South Vietnam - 1970-1973



Source: Shelby L. Stanton, *The Rise and Fall of an American Army: U.S. Ground Forces in Vietnam, 1965-1973* (Novato, California: Presidio Press, 1985), p. 334.

Appendix A: Huba Wass de Czege's Combat Power Model

THE COMBAT POWER MODEL

COMBAT POWER IS A FUNCTION OF:

FIREPOWER EFFECT: (which is a function of)

VOLUME OF FIRES: (which is a function of)

- Number of delivery means
- Supply capability
- Rate of fire of weapons systems

LETALITY OF MUNITIONS:

- Design characteristics
- Explosive energy

ACCURACY OF FIRES:

- Weapon and munition design characteristics
- Crew proficiency
- Terrain effects
- Visibility

TARGET ACQUISITION:

- Intelligence and intelligence analysis
- Location and functioning of observers and sensors
- Transmission of target data

FLEXIBILITY OF EMPLOYMENT:

- Weapons ranges
- Mobility
- Signature effects
- Fire control systems
- Tactical employment doctrine

MANEUVER EFFECT:

UNIT MOBILITY:

- Physical fitness and health of individuals
- Unit teamwork and esprit
- Unit equipment capabilities
- Unit equipment maintenance
- Unit mobility skills

TACTICAL ANALYSIS:

- Intelligence and knowledge of enemy tactics
- Understanding of terrain effects
- Understanding of own unit capabilities

MANAGEMENT OF RESOURCES:

- Equipment utilization
- Supplies utilization
- Personnel utilization
- Time utilization
- Utilization of energies of subordinates

COMMAND, CONTROL AND COMMUNICATIONS:

- Open of control
- SCP's and doctrine
- Staff efficiency
- Communications efficiency

PROTECTION EFFECT:

CONCEALMENT:

- Camouflage
- Stealth
- Equipment design
- Counter enemy intelligence acquisition means

EXPOSURE LIMITATION:

- Minimize potential target size
- Minimize potential target exposure time
- Complicate potential target tracking

DAMAGE LIMITATION:

- Individual protective equipment design and use
- Use of natural cover
- Use of artificial cover (incl field fortifications)
- Combat vehicle design
- Medical treatment and evacuation system
- Combat equipment cannibalization and repair
- Alternate command and control arrangements
- Providing personnel and materiel replacements
- Misc. efforts to maintain continued combat effectiveness of units

LEADERSHIP EFFECT:

TECHNICAL PROFICIENCY:

- Training
- Experience

UNDERSTANDING OF UNIT CAPABILITIES:

- Training
- Experience

ANALYTICAL SKILLS:

- Selection
- Training
- Experience

COMMUNICATION SKILLS:

- Selection
- Training

DEDICATION, COMMITMENT, AND MORAL FORCE:

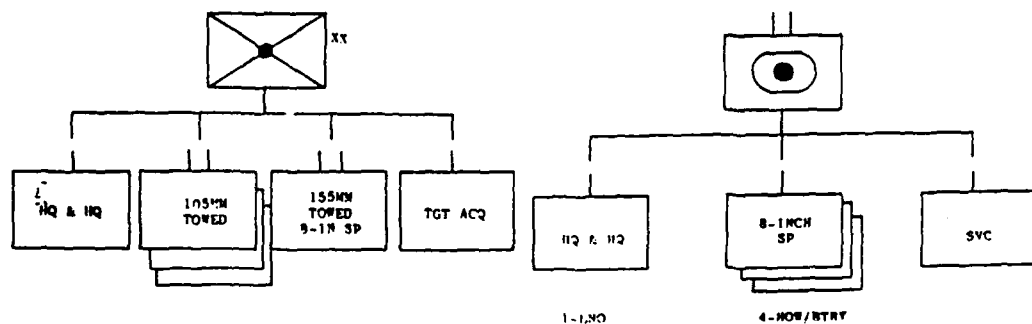
- Selection
- Motivation
- Training

UNDERSTANDING OF BATTLEFIELD EFFECTS:

- Combat experience
- Training

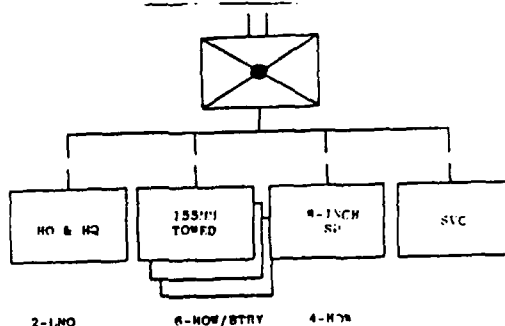
Source: Huba Wass de Czege, "Understanding and Developing Combat Power," AMSP Course 2 Tactical Dynamics AY 89-90 (School of Advanced Military Studies, Fort Leavenworth, Kansas, AY89-90), pp. 17-19.

Appendix B: Artillery Organizations



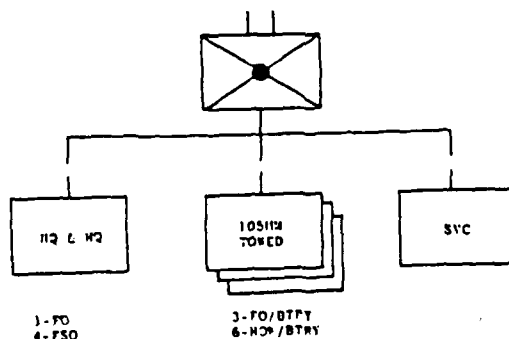
Infantry Division Artillery.

8-Inch Howitzer Battalion,
Mechanized Infantry and
Armored Divisions.



155mm/8-Inch Howitzer Battalion
Infantry Division

The composite 155mm/8-inch howitzer battalion has a headquarters and headquarters battery, a service battery, three 155mm towed howitzer batteries, and one 8-inch SP howitzer battery (figure 11). Each of the three 155mm batteries has six howitzers and the 8-inch battery has four howitzers. The 8-inch howitzer battery is capable of operating independently (from the battalion) for short periods of time. The service battery provides the logistics and maintenance support for the battalion.



105mm Howitzer Battalion,
Infantry Division.

Source: Student Text (ST) 7-375 FY77 Fire Support Handbook,
(Ft. Benning, Georgia: U.S. Army Infantry School, 1977),
pp. 8-10.

Appendix C: Artillery and Mortar Weapons Capabilities

LIGHT CANNON

| | M101A1 (105mm T) | M102 (105mm T) |
|--------------------------------------------------------------------------------------|------------------|----------------|
| MAXIMUM RANGE | 11,000 meters | 11,500 meters |
| MAXIMUM MUZZLE VELOCITY | 465 meters/sec | 494 meters/sec |
| TIME TO EMPLACE | 3 minutes | 3 minutes |
| TRAVELING WEIGHT | 4,980 pounds | 3,140 pounds |
| MAXIMUM RATE OF FIRE | 10 rounds/min | 10 rounds/min |
| SUSTAINED RATE | 3 rounds/min | 3 rounds/min |
| PRIME MOVER | 21/27 Trk, CH47 | 5/4T Trk, CH47 |
| AIR TRANSPORTABILITY | Phase I | Phase I |
| WEIGHT, HE PROJECTILE | 33 pounds | 33 pounds |
| WEIGHT, PACKAGED ROUND | 69 pounds | 69 pounds |
| TYPE MUNITIONS: HE, ICM, WP, Smoke, Illum, APERS, Chemical, HEAT, HEP-T, and Leaflet | | |

MEDIUM CANNON

| | M114A1 (155mm T) | M109A1 (155mm SP) |
|--------------------------------------------------------------------------|------------------------|-------------------|
| MAXIMUM RANGE | 14,600 meters | 18,100 meters |
| MAXIMUM MUZZLE VELOCITY | 564 meters/sec | 701 meters/sec |
| TIME TO EMPLACE | 5 minutes | 1 minute |
| TRAVELING WEIGHT | 12,950 pounds | 53,060 pounds |
| MAXIMUM RATE OF FIRE | 4 rounds/min | 4 rounds/min |
| SUSTAINED RATE | 1 round/min | 1 round/min |
| PRIME MOVER | 5T Trk, CH47C, CH54 SP | |
| SP CRUISING RANGE | N/A | 217 miles |
| AIR TRANSPORTABILITY | Phase I | Phase II |
| WEIGHT, HE PROJECTILE | 95 pounds | 95 pounds |
| WEIGHT, PACKAGED ROUND | 136 pounds | 136 pounds |
| TYPE MUNITIONS: HE, ICM, Smoke, Chemical, SP, Nuclear, CLGP, Illum, ADAM | | |

HEAVY CANNON

| | M110 (8" SP) | M110 (8" SP) | M107 (175mm SP) |
|-------------------------|----------------------------|----------------------------|-----------------|
| MAXIMUM RANGE | 18,800 meters | 21,000 meters | 32,800 meters |
| MAXIMUM MUZZLE VELOCITY | 594 meters/sec | 690 meters/sec | 914 meters/sec |
| TIME TO EMPLACE | 2 minutes | 3 minutes | 3 minutes |
| TRAVELING WEIGHT | 58,500 pounds | 62,100 pounds | 62,100 pounds |
| MAXIMUM RATE OF FIRE | 1.5 rounds/min | 1.5 rounds/min | 1.5 rounds/min |
| SUSTAINED RATE | .5 rounds/min | .5 rounds/min | .5 rounds/min |
| SP CRUISING RANGE | 450 miles | 450 miles | 450 miles |
| AIR TRANSPORTABILITY | Phase III | Phase III | Phase III |
| WEIGHT, HE PROJECTILE | 200 pounds | 200 pounds | 147 pounds |
| WEIGHT, PACKAGED ROUND | 263 pounds | 263 pounds | 276 pounds |
| TYPE MUNITIONS | HE, ICM, Nuc ADAM, Chem | HE, ICM, Nuc ADAM, Chem | HE only |

MORTAR

| WEAPON | RANGE (METERS) | | WEIGHT LBS | TIME TO EMPLACE MIN | RATE OF FIRE RDS/MIN | AKMO | NO OF WEAPON PER UNIT |
|--------|----------------|------|---------------|---------------------------|-------------------------|-------------------------------------|--------------------------------------------------|
| | MIN | MAX | | | | | |
| 60mm | 75 | 3500 | 45 | 7 | 15 sustained 30 max | HE WP Illum | 3/inf co 9/inf bn (airborne/ airmobile) |
| 81mm | 72 | 4595 | 95 | 7 | 15 sustained 30 max | HE WP Illum | 3/inf co 9/inf bn |
| 107mm | 902 | 5650 | 672 | 7 | 3 sustained 18 max | HE WP Illum Chem(CS) BC | 4/inf bn 4/arm bn |

Source: Student Text (ST) 7-375 F777 Fire Support Handbook
(Ft. Benning, Georgia: U.S. Army Infantry School, 1977), pp. 2-5, 16

Appendix D: Field Artillery Target Acquisition and Ground Surveillance Radar Capabilities

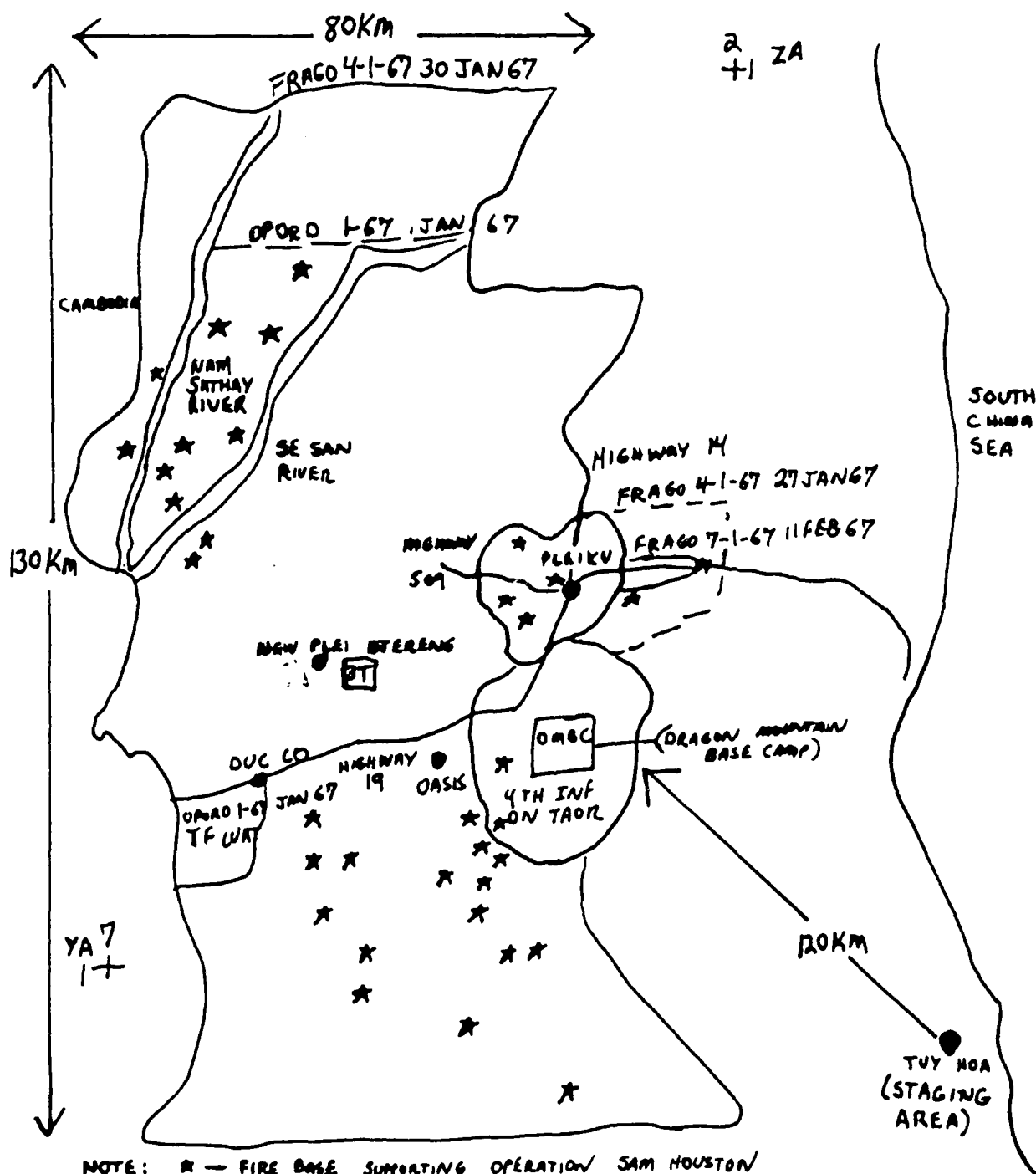
| FIELD ARTILLERY TARGET ACQUISITION ASSET CAPABILITIES | | | | | | | |
|----------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------------|--------------------|--------------------------------------|---------|-------------------|
| ASSET | MAXIMUM RANGE (KMI) | SECTOR WIDTH COVERAGE | ACCURACY OF LOCATION | REQUIRED SURVEY | EMPLOYED DISTANCE FROM FLOT (KMI) | | TECHNICAL DATA |
| | | | | | OFFENSE | DEFENSE | |
| WEAPONS LOCATING RADARS | | | | | | | |
| AN MPQ 4 | 15 | 645 mils | 50 meters high angle radial error 40 200 meters low angle (RE) | 5th order | 1.4 | 3.7 | FMB-101 |
| AN TPD 30 | 15 (major artillery) 24 (rockets) | 600 mils | ± 50 meters | 5th order | 1.8 | 3.8 | FMB-101 |
| AN CLO 37 | 30 (artillery) 50 (rockets) | 1 600 mils | ± 50 meters | 4th order | 1.12 | 8.12 | FMB-101 |
| MOVING TARGET LOCATING RADARS | | | | | | | |
| AN TPS 25 | 18 vehicles | 180 or 500 mils | 100 meters | 5th order | 1.2 | 1.2 | FMB-101 |
| AN TPS 50 | 20 vehicles | 500 2 500 mils | 50 meters | 5th order | 1.2 | 1.2 | FMB-101 |
| SOUND RANGING | | | | | | | |
| AN TWS 10 | 20 normal, based on terrain and weather | 270 mils right and left of track microphones | 150 meters RE | 4th order | 1.4 | 3.8 | FMB-122 |

RADAR CHARACTERISTICS

| | AN/PPS-4 | AN/PPS-5 | AN/PPS-15 |
|----------------------------------------|---------------------|------------------------------------------------------------|---------------------------------------|
| RANGE: Personnel Vehicles | 1 500m 6 000m | 6 000m 10 000m | 3 000m |
| ACCURACY: Range Azimuth | ± 25 m ± 10 mils | ± 20 m ± 10 mils | ± 20 m ± 10 mils |
| SECTOR SCAN: | Manual | Automatic — 553 1 067 1 500 and 1 955 mils (selectable) | Automatic 800 or 1 600 mils |
| INDICATORS: | Audio | Audio and visual (A- and B-scope) | Audio and visual (Digital Readout) |
| REMOTE CAPABILITY: | None | 50 ft | 30 ft |

Source: Field Manual (FM) 34-80 Brigade and Battalion Intelligence and Electronic Warfare Operations, (Washington, D.C.: Department of the Army, 1986), pp. 2-8, 2-18.

Appendix E: Operation Sam Houston Area of Operations,
1 January - 5 April 1967

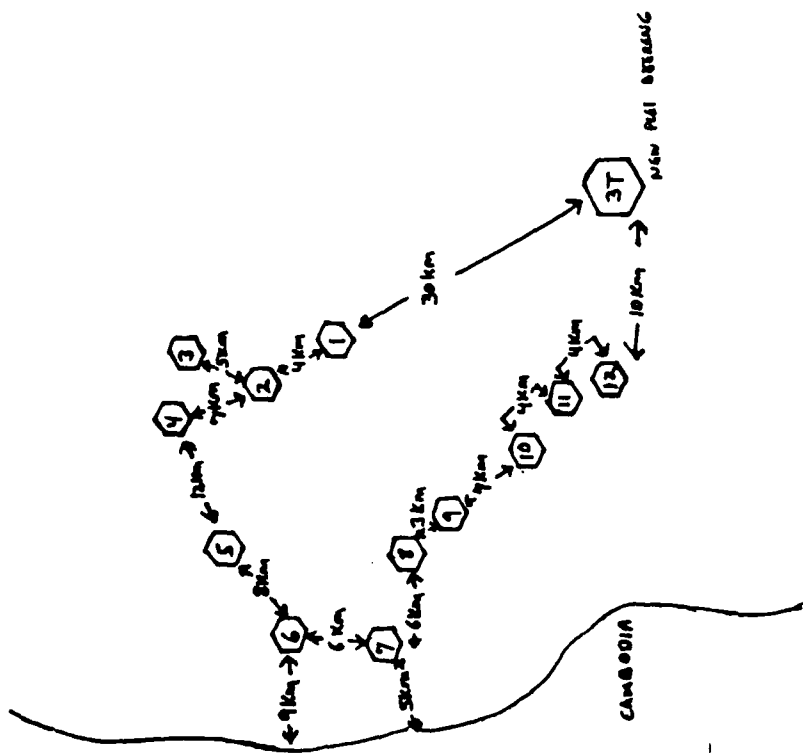


Source: 4th Infantry Division, After-Action Report - 4th Division - Operation Sam Houston, 18 May 1967.

Not Drawn to Scale

Note: This is a sketch that the author developed using sources contained in the after-action report. The sketch displays the approximate locations firebases relative to one another.

TAB 1, Appendix E: Fire Bases Supporting Operations in Northern Sector of Operation Sam Houston Area of Operations



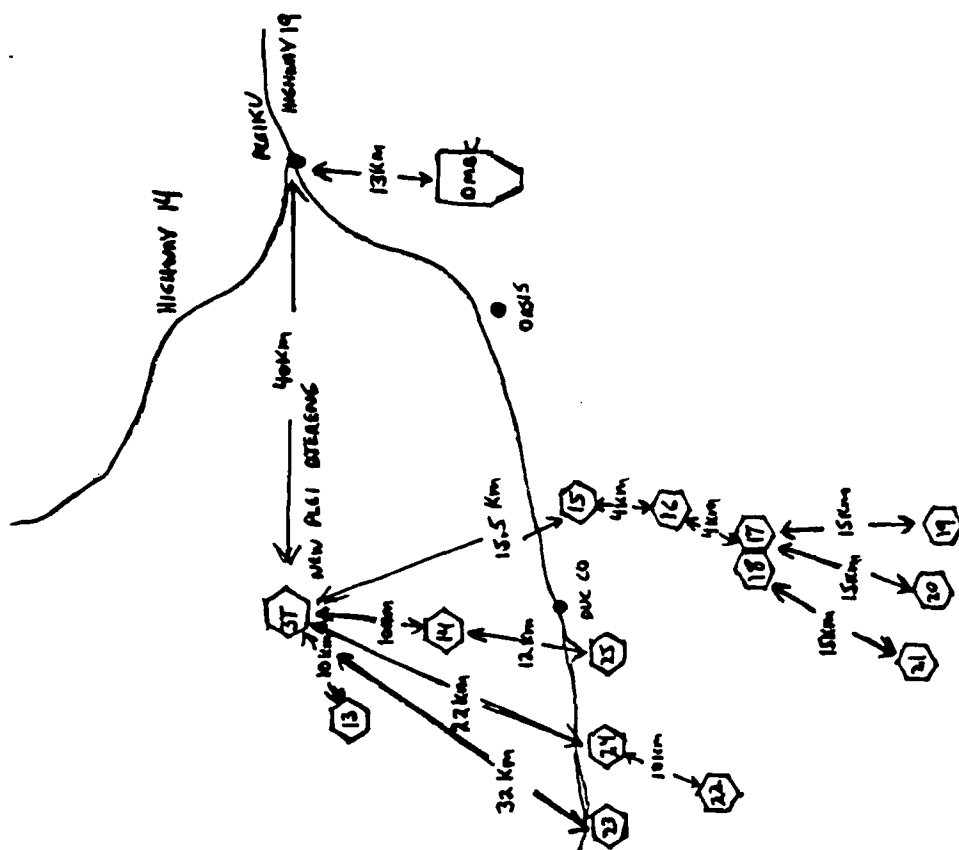
Source: 4th Infantry Division, After-Action Report - 4th Division - Operation Sam Houston, 16 May 1967.

Not Drawn to Scale

Note: The sketch displays the approximate locations of firebases relative to one another. The author has numbered the FSB's for purposes of analysis.

| FSB | Dates of Occupation | Unit |
|-------------|---------------------|--------------------------------------------------------------------------------------|
| 1) 3T: | 1 Jan-28 Mar 67 | 2d Bde, 4th Div (see Appendix F, Task Organization, for assigned artillery units) |
| | 1-30 Jan 67 | 1/12 Inf, 2d Bde |
| | 4-10 Jan 67 | 1/22 Inf, 2d Bde |
| | 31 Jan-15 Feb 67 | 1/22 Inf, 2d Bde |
| | 18-21 Feb 67 | TF 1-8 Inf A/8-29 Artillery |
| 2) FSB 1: | 3-9 Mar 67 | 2/35 Inf, 1st Bde C/2-9 Artillery |
| 3) FSB 2: | 4-11 Mar 67 | 1/8 Inf, 1st Bde A/8-29 Artillery |
| 3) FSB 3: | 11-13 Mar 67 | 1/8 Inf, 1st bde A/6-29 Artillery |
| 4) FSB 4: | 10-13 Mar 67 | 3/8 Inf, 1st Bde Unknown Artillery Unit |
| 5) FSB 5: | 2 Feb-4 Mar 67 | 1/12 Inf, 2d Bde Unknown Artillery Unit |
| 6) FSB 6: | 8-18 Mar 67 | 1/12 Inf, 2d Bde Unknown Artillery Unit |
| 7) FSB 7: | 15 Feb-8 Mar 67 | 1/22 Inf, 2d bde Unknown Artillery Unit |
| 8) FSB 8: | 27 Feb-3 Mar 67 | 1/12 Inf, 2d Bde Unknown Artillery Unit |
| 9) FSB 9: | 20 Jan-9 Mar 67 | 2/35 Inf, 1st Bde Unknown Artillery Unit |
| | 9-28 Mar 67 | 2/35 Inf, 1st Bde Unknown Artillery Unit |
| 10) FSB 10: | 3-20 Jan 67 | 2/8 Inf, 2d Bde Unknown Artillery Unit |
| | 17-27 Feb 67 | 2/35 Inf, 1st Bde Unknown Artillery Unit |
| | 3-18 Mar 67 | 1/8 Inf, 1st Bde Unknown Artillery Unit |
| | 18-29 Mar 67 | 3/8 Inf, 1st Bde Unknown Artillery Unit |
| 11) FSB 11: | 30 Jan-2 Feb 67 | 1/12 Inf, 2d Bde Unknown Artillery |
| 12) FSB 12: | 21-22 Feb 67 | 1/8 Inf, 1st Bde A/6-29 Artillery |

TAB 2, Appendix E: Fire Bases Supporting Operations in Southern Sector of Operation Sam Houston Area of Operations



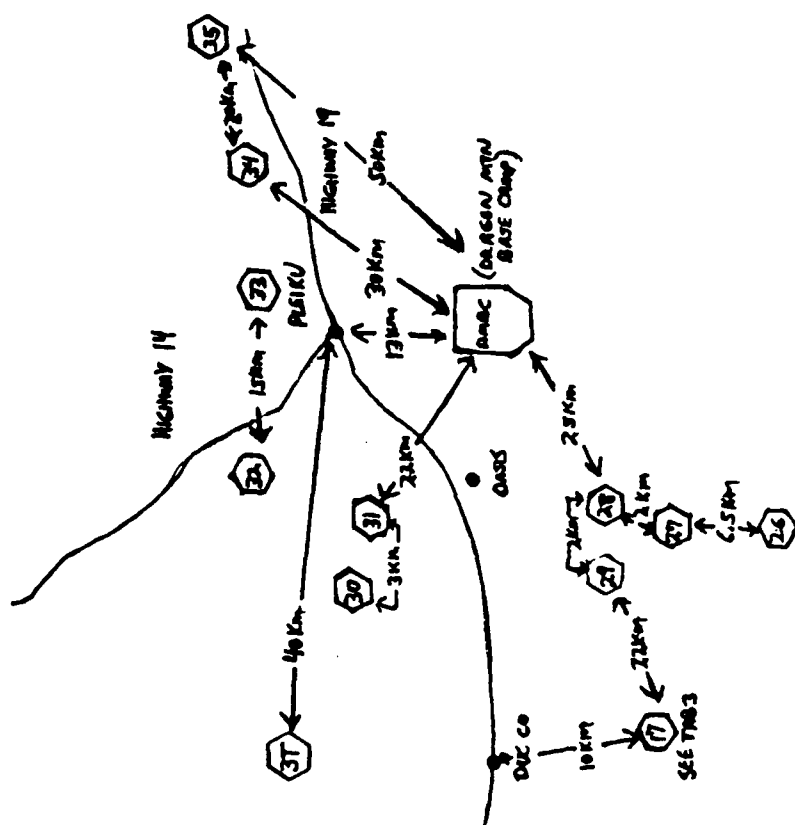
| FSB | Dates of Occupation | Unit |
|------------|---------------------|-------------------------------------------------------------------|
| 1) FSB 13 | 10-15 Jan 67 | 1/22 Inf, 2d Bde |
| 2) FSB 14 | 18-29 Mar 67 | Unknown Artillery Unit |
| 3) FSB 15 | 15-23 Jan 67 | 1/22 Inf, 2d Bde |
| | | Unknown Artillery Unit |
| | | Division Troops |
| | | 1-69 Armor |
| | | C/5-16 Artillery (DS) |
| 4) FSB 16 | 22-27 Jan 67 | Division Troops |
| | | 1-69 Armor |
| | | C/5-16 Artillery (DS) |
| 5) FSB 17 | 3 Mar-5 Apr | 1st Bde HQ |
| 6) FSB 18 | 29 Mar-5 Apr | 6-29 Artillery Prov (DS) |
| 7) FSB 19 | 27-29 Jan 67 | 3/8 Inf, 1st Bde |
| | | 1-69 Armor |
| | | C/5-16 Artillery (DS) |
| 8) FSB 20 | 4-13 Feb 67 | TF 2-35 Inf |
| | | A/2-9 Artillery |
| | | TF 2-5 Inf |
| | | A/2-9 Artillery |
| 9) FSB 23 | 4-5 Apr 67 | 1/8 Inf, 1st bde |
| | | Unknown Artillery unit |
| 10) FSB 24 | 2-15 Feb 67 | 1/12 Inf, 2d Bde |
| | | Unknown Artillery Unit |
| | | 1st Bde HQ |
| | | (See Appendix F, Task Organization, for assigned artillery units) |
| 11) FSB 25 | 18-29 Mar 67 | 1/22 Inf, 2d Bde |
| | | Unknown Artillery Unit |

Source: 4th Infantry Division, After-Action Report - 4th Division - Operation Sam Houston, 16 May 1967.

Not Drawn to Scale

Note: The sketch displays the approximate locations of firebases relative to one another. The author has numbered the FSB's for purposes of analysis.

TAB 3, Appendix E: Fire Bases Supporting Operations in Eastern Sector of Operation Sam Houston Area of Operations



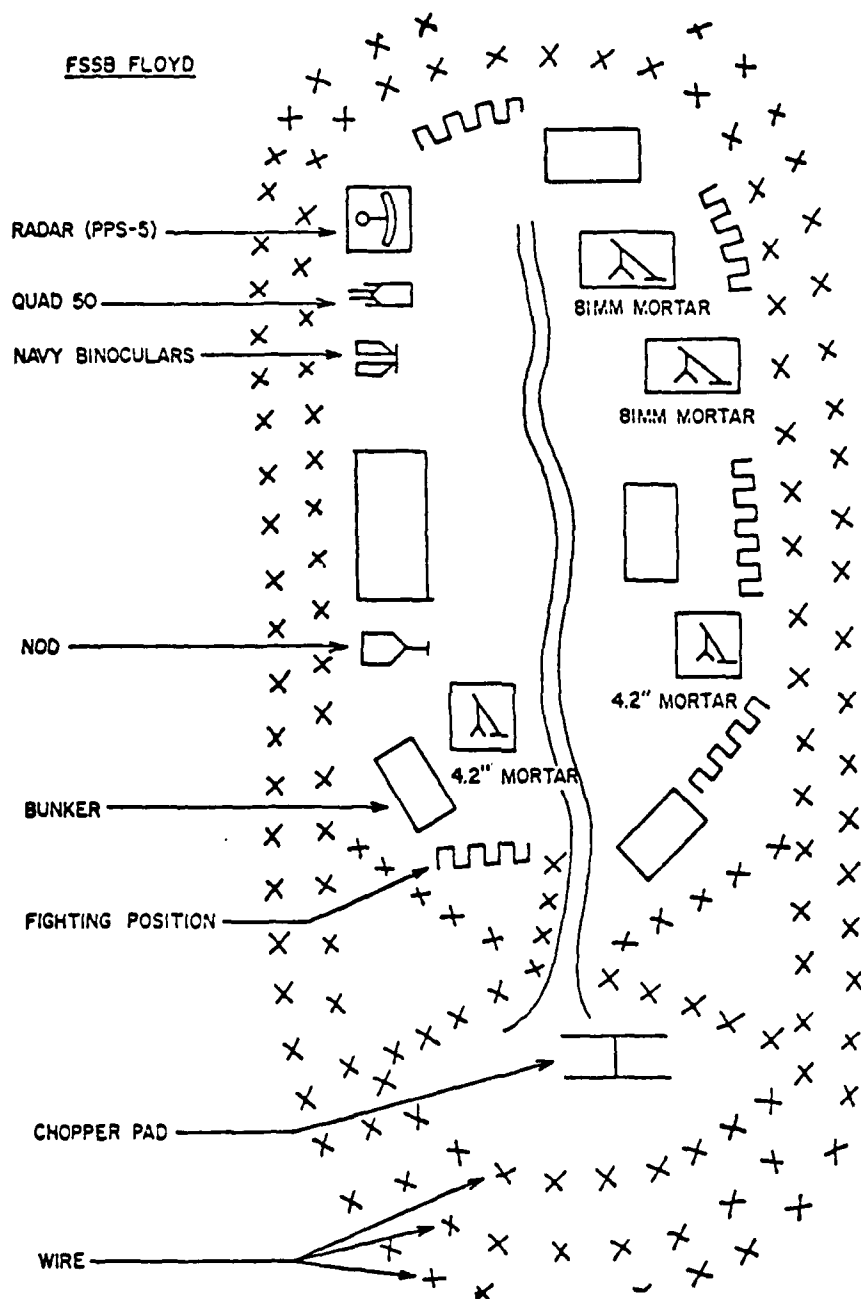
| FSB | Dates of Occupation | Unit |
|------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) FSB 26 | 26-28 Jan 67 | TF 1-10 Cav 3-8 Artillery (DS) 1-22 Inf, 2d Bde Unknown Artillery Unit |
| | 17-23 Jan 67 | TF 1-8 Inf A/6-29 Artillery TF 2-35 Inf C/2-9 Artillery |
| 2) FSB 27 | 24-25 Jan 67 | 1-22 Inf C/4-42 Artillery (DS) 2d Bde Hq 4-42 Artillery (-) 2d Bde Hq C/2-9 Artillery TF 1-8 Inf A/6-29 Artillery TF 1-10 Cav 3-6 Artillery (-)DS TF 1-10 Cav 3-6 Artillery (-)DS 2d Bde Hq (See Appendix F, Task Organization, for assigned artillery units) |
| 3) FSB 28 | 27 Mar-5 Apr 67 | |
| | 29-30 Jan 67 | |
| | 18-25 Jan 67 | |
| 4) FSB 29 | 2-17 Jan 67 | |
| | 16-17 Jan 67 | |
| 5) FSB 30 | 25-30 Jan 67 | 1-22 Inf C/4-42 Artillery DS |
| 6) FSB 31 | 29 Jan-5 Apr 67 | TF 1-10 Cav 5-18 Artillery (-) DS |
| 7) FSB 32 | 29 Mar-5 Apr 67 | 1-22 Inf C/2-9 Artillery OPCON |
| 8) FSB 33 | 1-2 Jan 67 | TF 1-10 |
| 9) FSB 34 | 29 Jan-5 Apr 67 | TF 1-69 3-8 Artillery (-) DS |
| 10) FSB 35 | 2-8 Jan 67 | TF 2-35 Inf C/2-9 Artillery B/3-6 Artillery |

Source: 4th Infantry Division, After-Action Report - 4th Division - Operation Sam Houston, 16 May 1967.

Not Drawn to Scale

Note: The sketch displays the approximate locations of firebases relative to one another. The author has numbered the FSB's for purposes of analysis.

Appendix F: FSB Floyd, 29 August 1970



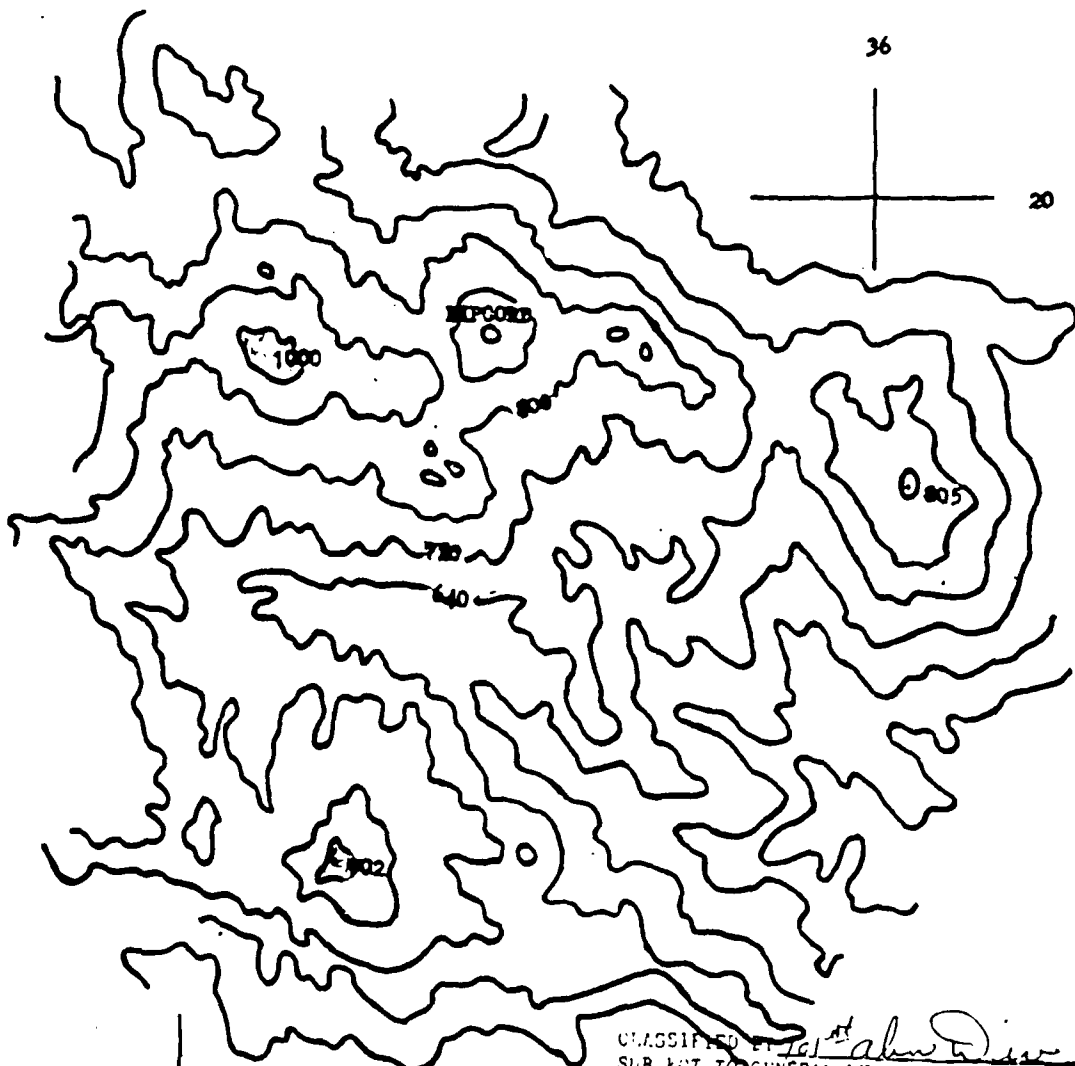
Fire Support Surveillance Base FLOYD layout, 29 August 1970.

Source: John H. Hay, Vietnam Studies: Tactical and Material Innovations (Washington, D.C.: Department of the Army, 1974), p. 102.

Appendix G: FS/OB Ripcord and Vicinity, July 1970

~~CONFIDENTIAL~~ **DECLASSIFIED**

Inclosure 1 (FS/OB RIPCORN and Vicinity) to RIPCORN After Action Report.



CLASSIFIED BY *John D. [illegible]*
SUB ECT TO GENERAL DECLASSIFICATION
SCHEDULE OF EXECUTIVE ORDER 11652
AUTOMATICALLY DOWNGRADED AT TWO YEAR
INTERVALS DECLASSIFIED ON DEC. 31/1976.

SCALE 1:25,000

Inclosure 1

~~CONFIDENTIAL~~ **DECLASSIFIED**

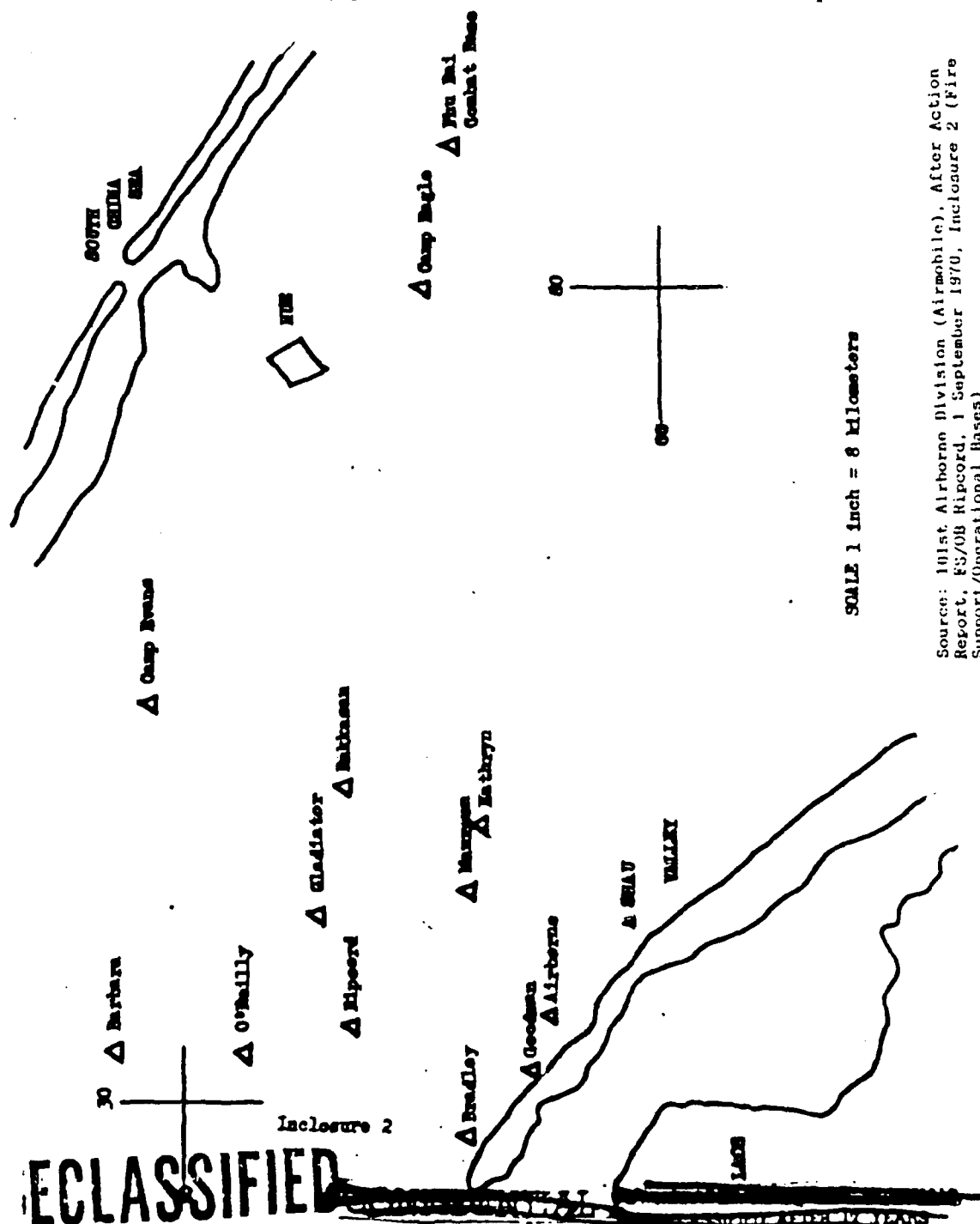
~~CONFIDENTIAL~~ **DECLASSIFIED**

Source: 101st Airborne Division (Airmobile), After Action
Report, FS/OB Ripcord, 1 September 1970, Inclosure 1 (FS/OB
Ripcord and Vicinity)

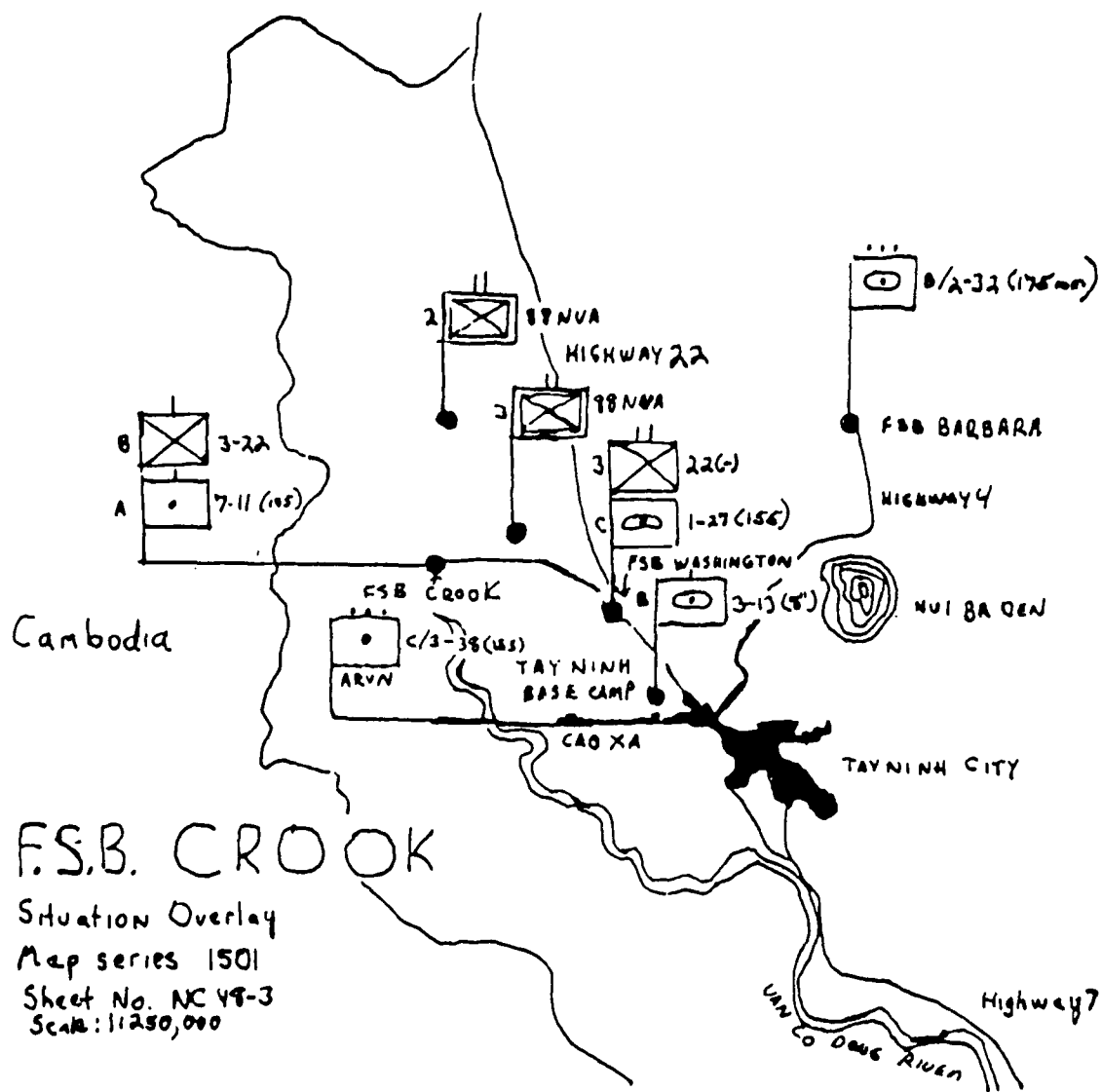
Appendix H: Fire Bases Supporting FSB Ripcord, July 1970

DECLASSIFIED

Inclosure 2 (Fire Support/Operational Bases) to RIFPCOMD After Action Report.

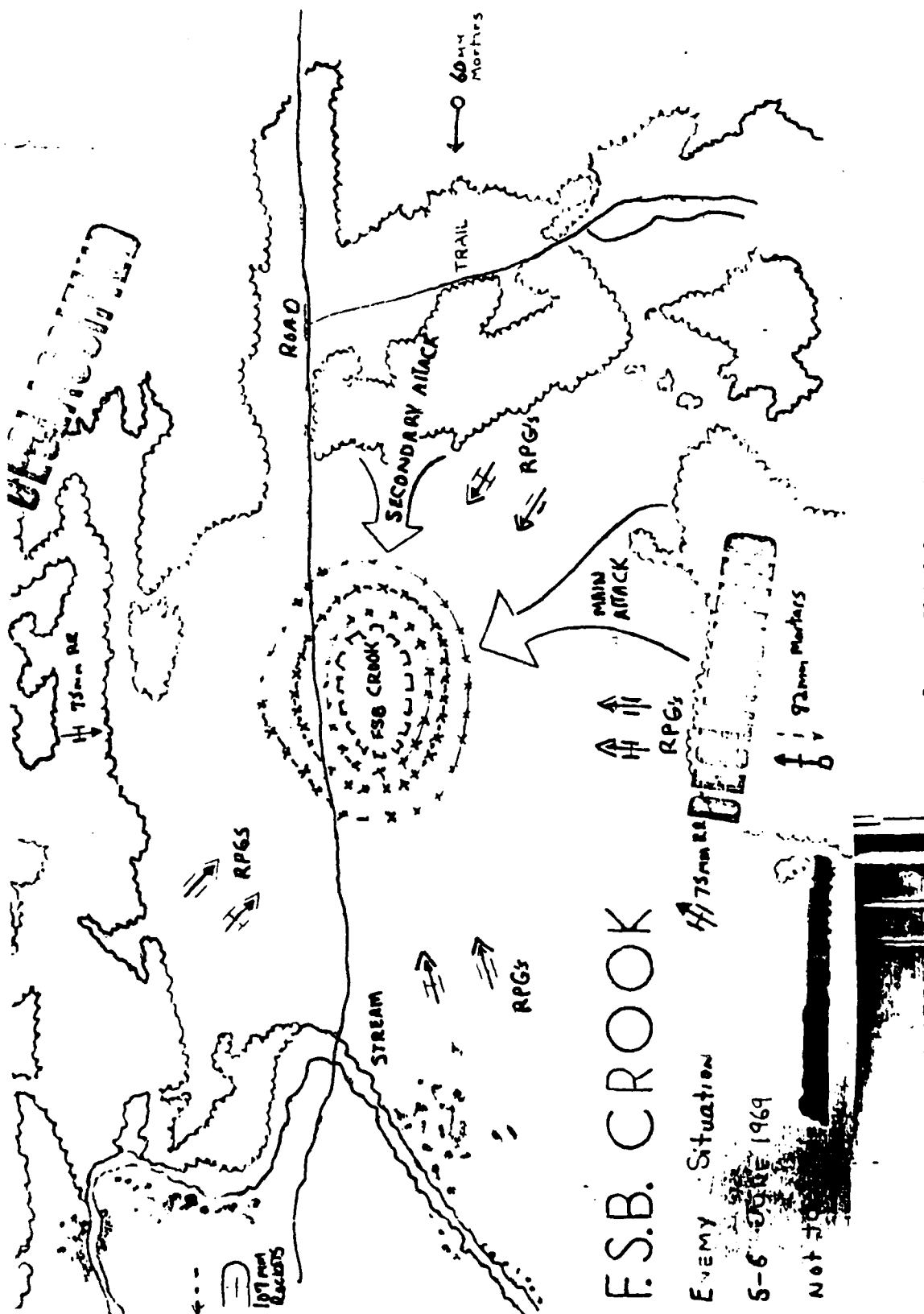


Appendix 1: Situation Overlay FSB Crook, 5-7 June 1969



Source: 25th Infantry Division, Operational Report, Combat Lessons Learned, 2 January 1969, Appendix K (FSB Crook), Inclosure 1 (Situation Overlay)

Tab 1, Appendix 1: Enemy Situation,
FSB Crook, 5-6 June 1969



Source: 25th Infantry Division, Operational Report - Combat
Lessons Learned, 2 January 1969, Appendix K (FSB Crook),
Inclosure 3 (Enemy Situation 5-6 June 1969)

Source: 25th Infantry Division, Operational Report - Combat Lessons Learned, 2 January 1969, Appendix K (FSH Crook), Inclosure 4 (Friendly Fire 5-6 June 1969)

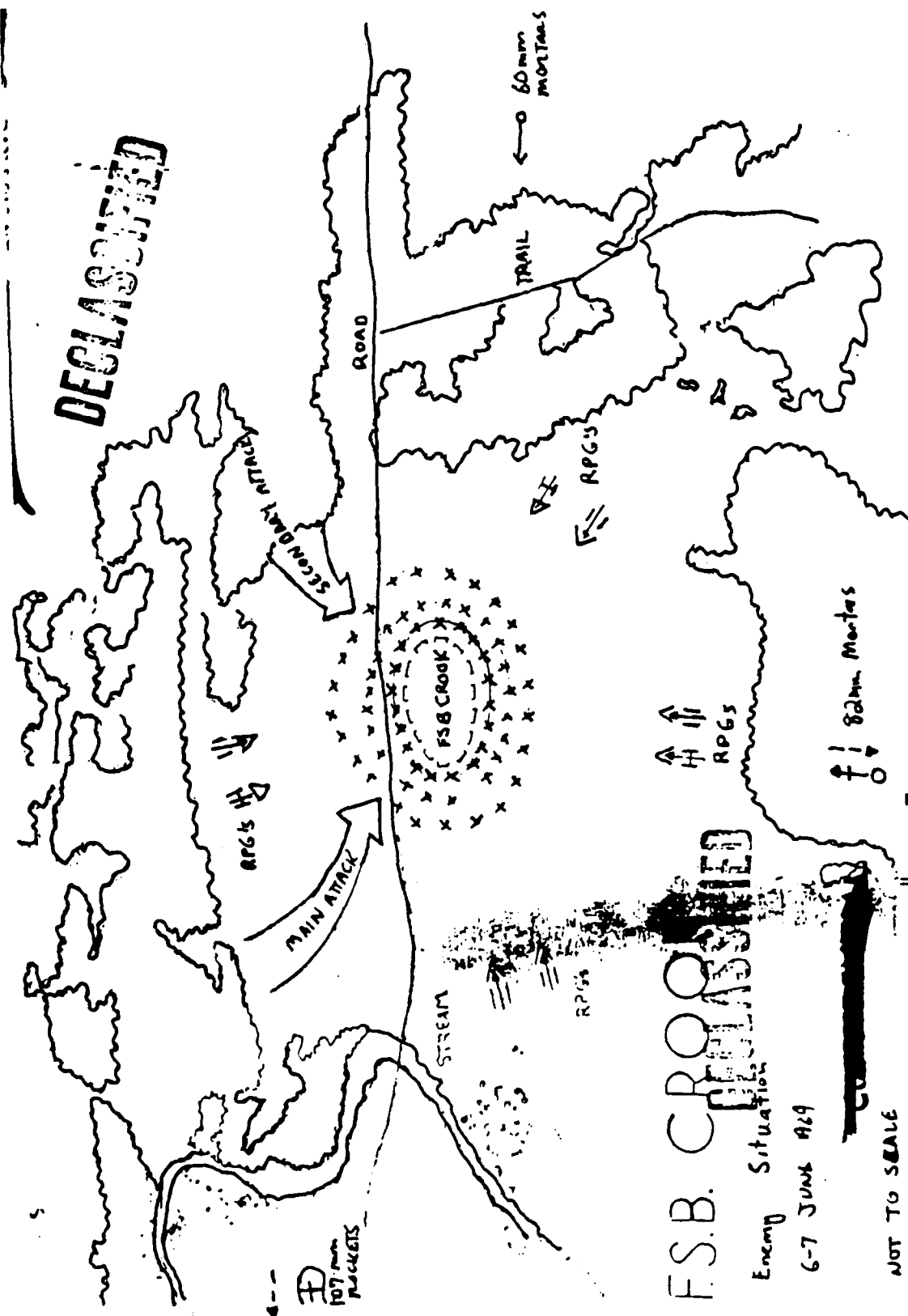
BOOKS

FRIENDLY FACES

5-6 9-5

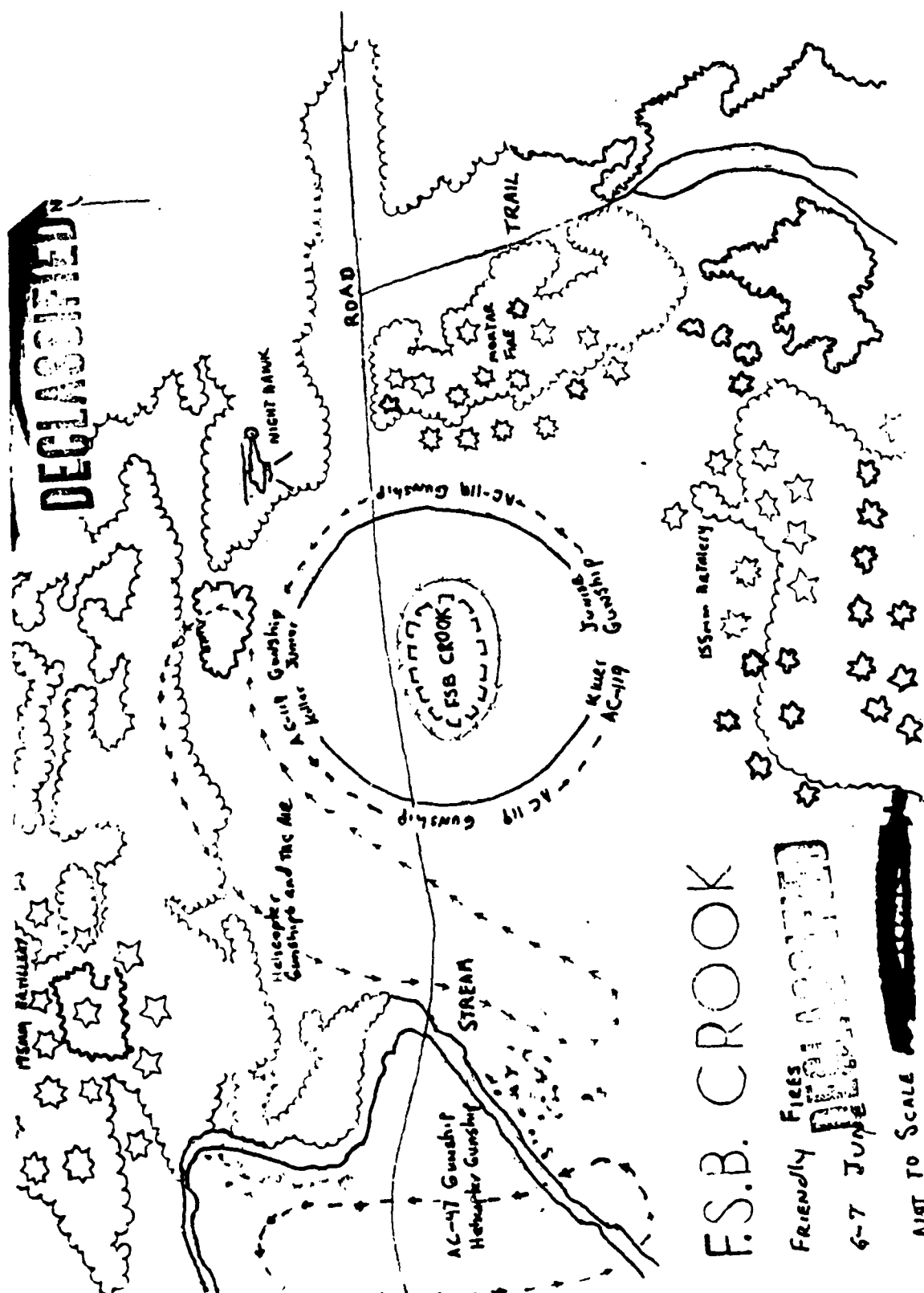
Not to Scale

Tab 3, Appendix I: Enemy Situation,
FSB Crook, 6-7 June 1969



Source: 25th Infantry Division, Operational Report - Combat
Lessons Learned, 2 January 1969, Appendix K (FSB Crook),
Inclosure 5 (Enemy Situation 6-7 June 1969)

Tab 4, Appendix I: Friendly Fires,
FSB Crook, 6-7 June 1969



Source: 25th Infantry Division, Operational Report - Combat
Lessons Learned, 2 January 1969, Appendix K (FSB Crook),
Inclosure 6 (Friendly Fire 6-7 June 1969)

Appendix J: Rules of Engagement

1. UNINHABITED AREAS.

a. Fire may be directed against VC/NVA forces in contact in accordance with normal artillery procedures.

b. Unobserved fire may be directed at targets and target areas, other than VC/NVA forces in contact, only after approval by Province Chief, District Chief, Sector Commander, or Subsector Commander and US/FWMAF Military Commander, as appropriate, has been granted.

c. Observed fire may be directed against targets of opportunity which are clearly identified as hostile without obtaining Province Chief, District Chief, Sector Commander, or Subsector Commander and US/FWMAF Military Commander's approval.

d. Approval by Province Chief, District Chief, Sector Commander, or Subsector Commander and US/FWMAF Military Commander, as appropriate, is required, before directing fire on targets of opportunity not clearly identified as hostile.

2. VILLAGES AND HAMLETS.

a. Fire missions directed against known or suspected VC/NVA targets in villages and hamlets occupied by noncombatants will be conducted as follows:

(1) All such fire missions will be controlled by an observer and will be executed only after approval is obtained from the Province Chief or District Chief, as appropriate. The decision to conduct such fire missions will also be approved by the attacking force battalion or task force commander, or higher.

(2) Villages and hamlets not associated with maneuver of ground forces will not be fired upon without warning by leaflets and/or speaker system or by other appropriate means, even though fire is received from them.

(3) Villages and hamlets may be attacked without prior warning if the attack is in conjunction with a ground operation involving maneuver of ground forces through the area, and if in the judgment of the ground commander, his mission would be jeopardized by such warning.

b. The use of incendiary type ammunition will be avoided unless absolutely necessary in the accomplishment of the commander's mission or for preservation of the force.

3. URBAN AREAS.

a. Fire missions directed against known or suspected VC/NVA targets in urban areas must preclude unnecessary destruction of civilian property and must by nature require greater restrictions than the rules of engagement for less populated areas.

b. When time is of the essence and supporting weapons must be employed to accomplish the mission or to reduce friendly casualties, fire missions will be conducted as follows:

(1) All fire missions will be controlled by an observer and will be executed only after GVN/RVNAF/US approval. The decision to conduct fire missions in urban areas will be retained at corps/field force or NAVFORV level. Approval must be obtained from both the corps commander and the US field force level commander. This approval is required for the employment of any US supporting weapons in urban areas to include those US weapons in support of RVNAF.

(2) Prior to firing in urban areas, leaflets and loudspeakers and other appropriate means will be utilized to warn and to secure the cooperation and support of the civilian populace even though fire is received from these areas.

(3) Supporting weapons will be used only on positively located enemy targets. When time permits, damage to buildings will be minimized.

(4) The use of incendiary type munitions will be avoided unless destruction of the area is unavoidable and then only when friendly survival is at stake.

(5) Riot control agents will be employed to the maximum extent possible. CS agents can be effectively employed in urban area operations to flush enemy personnel from buildings and fortified positions, thus increasing the enemy's vulnerability to allied firepower while reducing the likelihood of destroying civilian property. Commanders must plan ahead and be prepared to use CS agents whenever the opportunity presents itself.

4. THE ABOVE STATED PROCEDURES WILL NOT BE VIOLATED OR DEVIATED FROM EXCEPT, WHEN IN THE OPINION OF THE RESPONSIBLE COMMANDER, THE SITUATION DEMANDS SUCH IMMEDIATE ACTION THAT THESE PROCEDURES CANNOT BE FOLLOWED. SUCH SITUATIONS INCLUDE PRESERVATION OF THE FORCE OR THE RIGHT OF SELF-DEFENSE.

5. RVN/CAMBODIAN BORDER AREA.

a. Fire missions within 2000 meters of the RVN/Cambodian border will be observed, except under circumstances where fires are in defense of friendly forces and observation of such fires is not possible. These requirements are in addition to applicable control procedures stated elsewhere in this directive.

b. Fire missions with intended target areas more than 2000 meters from the RVN/Cambodian border may be unobserved, subject to applicable control procedures stated elsewhere in this directive.

c. Fire missions will not be conducted where dispersion could result in fire being placed on or over the RVN/Cambodian border.

d. Commanders will review and comply with the provisions of MACV Rules of Engagement—Cambodian when planning for operations near the Cambodian/RVN border.

Major commands subordinate to Military Assistance Command frequently published directives that interpreted the MACV rules, expanded them in greater detail, and often added qualifications which made them even more restrictive.

Field artillery units adopted the following procedures in the employment of their weapons to insure accuracy and preclude friendly casualties:

1. Firing a smoke shell set for a 200-meter height of burst as the first round for most observed missions. Smoke was relatively safe; thus, if the target location was improperly reported, supported ground troops would not be hurt. The forward observer made any correction necessary to insure that subsequent high explosive rounds fell in the intended locations.

2. Double-checking or triple-checking all data at each echelon from the forward observer to the howitzer. This procedure created a problem for some units because of personnel requirements. In many cases, especially in force artillery units, a battalion did not control its batteries. When the battalion controlled the batteries and retained a technical fire direction center either the battery or the battalion computed the mission and the other checked the data. When the batteries operated separately, each battery center had to be augmented so that it would have two shifts or two com-

Source: David E. Utt, Vietnam Studies: Field Artillery, 1954-1973 (Washington, D.C.: Department of the Army, 1975), pp. 173-175.

ENDNOTES

¹ Regional Conflict Working Group, Paper Submitted to the Commission in Integrated Long-Term Strategy, Supporting U.S. Strategy for Third World Conflict, May 1988 (Wash.D.C.: US Government Printing office, 1988), pp. 19, 20-25.

² Field Manual (FM) 90-8 Counter guerrilla Operations (Washington, D.C.: Department of the Army, 1986), pp. 1-1 - 1-2.

³ FM 90-8, pp. 1-2 - 1-3; Robert H. Scales, "Calling Down Thunderbolts in Small Wars," Army (July 1989), 72; P552 Insurgency and Counterinsurgency (United States Army Command and General Staff College, Fort Leavenworth, Kansas, January 1989), pp. 11-13; Edward Hoffer, "Field Artillery Fire Support for Counterinsurgency Operations: Combat Power or Counterproductive" (Unpublished Manuscript, School of Advanced Military Studies, Fort Leavenworth, Kansas, 1987), p. 2; Mao Tse Tung Selected Military Writings of Mao Tse-Tung (Peking, Foreign Language Press, 1966), pp. 156-165; Vo-Nguyen Giap, People's War, People's Army (New York: Frederick A. Praeger, 1962), pp. 46-47.

Four major insurgent strategies are : Leninist, Foco, Urban and Maoist:

1) Leninist Strategy: Employed during the Bolshevik Revolution in 1917, the essence of the Leninist strategy is a small, well-disciplined, well-organized conspiratorial party that derives support from critical groups within society and which exploits the weaknesses of the existing regime. Insurgents embracing this approach are active in urban areas, where political and economic power is concentrated. While Leninist strategy has few adherents today, its emphasis on the revolutionary party remains a fundamental characteristic of insurgent and revolutionary groups.

2) Foco: A foco strategy involves a small group of insurgents exploiting social, economic, and political unrest within a nation to spark popular desertion from the government. Because it does not require the establishment of a large insurgent organization, focoism offers potential for rapid revolution. Though it proved successful in Cuba and Nicaragua, focoism has failed repeatedly throughout Latin America. Some insurgents view it as a useful tactic in support of other strategic approaches.

3) Urban strategy involves relatively small, cellular terrorist organizations creating a climate of political crisis designed to provoke the existing regime into overreacting militarily and politically. This, in-turn, sparks social upheaval, contributing to wide scale disaffection with the government. While aspects of urban strategy were present in the 1970's Iranian Revolution and in Northern Ireland, it has proven to be of limited value to insurgents in revolutions in other parts of the world. Like focoism, some insurgents view urban strategy as providing useful tactics to support other strategies.

4) Maoist Strategy: Phase I: Latent and incipient insurgency. During this phase, the insurgent group recruits members, establishes organizations at the village level, seeks popular support and stresses political alternatives to the existing regime. Subversive activities are limited to selected acts of terrorism; Phase II: guerrilla warfare. During this phase, insurgents expand their organization, gain control of selected areas, and establish an alternative government structure. Insurgents wage guerrilla war to paralyze government forces, to embarrass the existing regime and to build-up power of the insurgents; Phase III: war of movement. During this phase, insurgents continue to expand the size of their forces while directly engaging government forces using conventional tactics. Insurgents may also receive external support.

⁴ Field Manual (FM) 100-20 Military Operations in Low-Intensity Conflict (Draft) (Washington, D.C.: Department of the Army, 1989), pp. 2-16 - 2-18, 2-35 - 2-36; FM 90-8, pp.3-1 - 3-2.

⁵ FM 90-8, p. E-9.

⁶ Department of the Army Concept Team in Vietnam, Final Report: Fire Support Base Defense (APO San Francisco: Department of the Army, April 1972), p. ii.

⁷ Huba Wass de Czege, "Understanding and Developing Combat Power," AMSP Course 2 Tactical Dynamics AY 89-90 (School of Advanced Military Studies, Fort Leavenworth, Kansas, AY 89-90), pp.12, 14.

$L_{+}(F_{+}+M_{+}+P_{+}-D_{+})-L_{-}(F_{-}+M_{-}+P_{-}-D_{-}) = \text{Outcome of Battle}$

Lf=friendly leadership effect

Le=enemy leadership effect

Ff=friendly firepower effect

Fe=enemy firepower effect

Mf=friendly maneuver effect

Me=enemy maneuver effect

Pf=friendly protection effect

Pe=enemy protection effect

De=enemy degrading effect

Df=friendly degrading effect

⁸ Field Manual (FM) 100-5 Operations (Washington, D.C.: Department of the Army, 1986), p. 11.

⁹ Ibid., pp.11-12.

¹⁰ Ibid., p. 12-13.

¹¹ Ibid., p. 13.

¹² Ibid.

¹³ Ibid., p. 14

¹⁴ Ibid., p. 17

¹⁵ FM 100-5, pp. 2,4-5,169-172; FM 100-20, p. viii; Colonel Kempf, Briefing to School of Advanced Military Studies, 6 September 1989, "Airland Battle Future Study."

¹⁶ Field Manual (FM) FM 90-8 Counter guerrilla Operations (Washington, D.C.: Department of the Army, 1986), pp. 1-8 - 1-10; FM100-5, pp. 14-16.

1) Tenets of Airland Battle applied to counterinsurgency:

a. Initiative: To preserve the initiative, subordinates act independently within the context of the overall plan. The overall attitude of the Army is one of action, not reaction, to the enemy's initiative. Soldiers and leaders must exhibit the characteristics of improvisation, initiative, and aggressiveness, tempered with intelligent and prudent decision making.

b. Depth: This tenet deals with depth in time, distance, and resources. Battle-in depth orients on delaying, disrupting and destroying the guerrilla's uncommitted forces and base areas. Reserves are kept to a minimum to permit massing of forces while retaining capability to meet other threats.

c. Agility: This tenet refers to the ability of friendly forces to act faster than the enemy. It requires flexible organizations and leaders capable of adapting quickly to changing situations. Leaders must be innovative and flexible. Mobility enhances the agility of forces engaged in counter guerrilla operations, but forces must not be tied to their vehicles. As a minimum, friendly forces must possess mobility equal to that of the guerrillas.

d. Synchronization: In counter guerrilla operations, synchronization includes effective, coordinated use of available combat power and its interface with civil activities. US military operations must be aligned with US policy and aims of the host government.

2) Combat Imperatives applied to counterinsurgency:

a. Ensure unity of effort: This imperative is derived from the principles of objective, unity of command, and simplicity. The commander must understand the US objective and how his operations support that objective.

b. Direct friendly strengths against enemy weaknesses: This imperative is derived from the principles of maneuver and surprise. The commander minimizes and protects his weaknesses and uses his strengths against the guerrilla's weak points. He also understands why and how the guerrilla fights.

c. Designate and sustain the main effort: This imperative is derived from the principles of mass and economy of force. Priorities are set at the tactical and operational levels to determine where the main effort is to occur and what goal is to be achieved.

d. Sustain the fight: To sustain momentum, the commander deploys forces in adequate depth and arranges for service support. Yet, he is audacious and presses his soldiers and systems to the limits of endurance.

e. Move fast, strike hard, and finish rapidly: The principles of this imperative are maneuver and mass. Speed and mobility are essential. To avoid detection, US forces employ deception, COMSEC and OPSEC. Operations are executed with speed to retain the initiative and freedom of action. This is balanced with the requirement for patience.

f. Use terrain and weather: The commander and his subordinates understand the impact of weather and terrain on friendly and enemy forces. They use this information to their advantage.

g. Protect the force: Successful commanders conserve and preserve the strength of their force. They do so through actions that assure security, maintenance of personnel and equipment, and discipline and morale. Friendly tactics orient on wearing down the adversary's will to fight.

¹⁷ FM 100-20, pp. 1-9 -1-10; FM 90-8, pp. 1-6 -1-7; Kempf, "Airland Battle Future."

1) FM 100-20 Definitions:

a) Political Dominance: Political objectives drive military decisions at every level from the strategic to the tactical.

b) Unity of effort: Military leaders must integrate their efforts with other governmental agencies to gain a mutual advantage in LIC.

c) Adaptability: Military leaders and organizations must possess skill and willingness to change or modify structures or methods to accommodate different situations. It requires careful mission analysis, comprehensive intelligence, and regional expertise.

d) Legitimacy: This is the willing acceptance of the right of a government to govern or of a group or agency to make and enforce decisions. IT is nether tangible nor easily quantified. It is the central concern of all parties directly involved in a conflict.

e) Patience: Low intensity conflict rarely have a clear beginning or end marked by decisive actions culminating in victory. They are, by nature, protracted struggles.

2) FM 90-8 - Response of US forces in any given situation must meet the following requirements:

a) Be appropriate: Response is appropriate to the level of threat and activity.

b) Be justifiable: Actions taken are justifiable in the eyes of the host nation population and of the US public.

c) Use minimum force: The goal is to restrict use of force and the level of commitment to the minimum feasible to accomplish the mission.

d) Do maximum benefit: US forces select operations that accomplish positive benefit for the population

e) Do minimum damage: US forces ensure that operations preclude unnecessary damage to facilities, activities, and resources.

18 FM90-8, pp. 3-6 - 3-10, 5-1, 6-9 - 6-10.

1) Intelligence: The key to defeating insurgents begins with exploiting technical and human resources of intelligence concerning terrain and enemy.

2) Tactical Situation: The organization for and conduct of counter guerrilla operations is dependent on the tactical situation. If the enemy is operating in platoon sized units, then platoon or company sized forces are employed. Dedicating large forces against small guerrilla bands is inefficient, compromises security and surprise, and reduces flexibility to operate in other areas.

3) Flexibility: Counter guerrilla forces must be capable of adapting to rapidly changing tactical situations, weather, and terrain.

4) Mobility: The ability of friendly forces to remain more agile than guerrillas is dependent on their capability to achieve equal or superior mobility.

5) Minimum Use of Force: Minimum force is applied to preclude civilian casualties and collateral damage. To reduce the need for firepower, however, counter guerrilla forces maneuver against insurgents to destroy their forces and base areas in close combat. FM 90-8 stresses that the "use of indirect fire, while effective in some cases, is not a substitute for maneuver." Though limited in employing the full range of combat power by the principle of minimum force, US counter guerrilla forces may be able to increase their use of firepower as the insurgent progresses from the first to the third stages of insurgency.

6) Patience: The characteristics of counterinsurgencies, combined with the proclivities of insurgents to wage protracted war and to avoid decisive combat require that US commanders exercise patience in their planning and execution.

7) Reserves: To minimize the detrimental effects of uncertainty and risk and to be capable of exploiting success, the counterinsurgent commander designates and adroitly positions a mobile reserve.

¹⁹ Ibid., 3-10, 3-13, 3-29 - 3-30, 7-1, E-9.

²⁰ FM 90-8, pp. 3-10 - 3-13.

²¹ Ibid., pp. 3-13 - 3-16. The four phases of internal defense and development are the following:

1) Preparation Phase: Detailed planning of military and civil actions

2) Offensive Phase: Moving the civil-military task force into the operational area, neutralizing guerrilla forces, and removing insurgents who have infiltrated the local government. Tactical units conduct various offensive operations to eliminate insurgent forces.

3) Development Phase: Host nation with US support conducts internal defense and development programs

4) Completion Phase: Gradual withdrawal of US forces and substitution by host nation forces.

²² Ibid., pp. 3-13 - 3-15.

²³ Ibid., pp. 7-1 - 7-2.

²⁴ Ibid., pp. 7-1 - 7-2.

²⁵ Ibid., pp. 3-29 - 3-30, E-11.

²⁶ Ibid., pp. 6-8 - 6-10.

²⁷ David Palmer, Summons of the Trumpet, (San Francisco: Presidio Press, 1978), pp. 79-85, 274; Herbert Y. Schandler, "America and Vietnam: The Failure of Strategy", in Regular Armies and Insurgency ed. by Ronald Haycock (Totowa, N.J.: Croom Helm Ltd., 1979), pp. 85-86.

²⁸ Paddy Griffith, Forward Into Battle (Sussex, United Kingdom: Strettington House, 1981), pp. 105, 107.

²⁹ Robert A. Doughty, The Evolution of US Army Tactical Doctrine, 1946-1976 (Fort Leavenworth, Kansas: Combat Studies Institute, 1979), pp. 29-30; Palmer, pp. 147, 151; Griffith, p. 108.

- ³⁰ Doughty, p. 29; Palmer, pp. 147-148.
- ³¹ Palmer, p. 151; Griffith, p. 108.
- ³² Palmer, p. 181; Doughty, p. 32, 36; Griffith, pp. 115-118.
- ³³ Doughty, pp. 31-32.
- ³⁴ "Fire Support Base Defense," pp. II-1, II-3; David E. Ott, Vietnam Studies: Field Artillery, 1954-1973 (Washington D.C.: Department of the Army, 1975), p. 55.
- ³⁵ John Hay Jr., Vietnam Studies: Tactical and Material Innovations (Washington, D.C.: Department of the Army, 1974), pp. 103-104; Shelby L. Stanton, The Rise and Fall of An American Army: U.S. Ground Forces in Vietnam, 1965-1973 (Novato, California: Presidio Press, 1985), pp. 343-344.
- ³⁶ Fire Support Base Defense, p. II-14.
- ³⁷ Ibid., p. II-4; Ott, pp. 69-70.
- ³⁸ Ott, pp. 58-59, 61, 70, 72; "Fire Support Base Defense," pp. II-40; ST 7-375 FY 77 Fire Support Handbook (Ft. Benning, Georgia: US Army Infantry School, 1977), pp. 7-8.
- ³⁹ "Fire Support Base Defense," pp. II-20, II-44; Fire Support Handbook, p. 106.
- ⁴⁰ Ott, pp. 73, 187-188.
- ⁴¹ Stanton, p. 335; Palmer, pp. 273-275, 279-280, 291, 294-301.
- ⁴² Palmer, pp. 294-301.
- ⁴³ Stanton, pp. 335, 343.
- ⁴⁴ MACV 1967 Wrap Up: A Year of Progress, MACV, USAFVN, 1967, pp. 1, 35-37, Appendix 1; 4th Infantry Division, After-Action Report, 4th Division - Operation Sam Houston, 16 May 1967, pp. 1, 15-16.
- ⁴⁵ Operation Sam Houston, pp. 9-10, 49, 51. Enemy forces in 4th Division's area of operations included: 1st NVA Division (5558 personnel); 32d Regiment (1500 personnel); 33d Regiment (940 personnel); 66th Regiment (1800 personnel); 10th NVA Division (unknown strength); 88th NVA Division (1600 personnel); 95B Regiment (1400 personnel); 101C Regiment (unknown strength); 24th NVA Regiment (1600 personnel); 200th Artillery Battalion (200 personnel); 407 Main Force (MF) Battalion (5000 personnel); 500 Local Force (LF) Battalion (375 Personnel).
- ⁴⁶ Ibid., pp. 16-22.
- ⁴⁷ Ibid., p. 16.
- ⁴⁸ Ibid.
- ⁴⁹ Ibid., p. 2. The locations of units at specific fire bases was derived from mission statements and task organizations contained in the 4th Infantry Division's after action report.
- ⁵⁰ Ibid., pp. 23-24.
- ⁵¹ Ibid., pp. 38, 44.
- ⁵² Ibid., pp. 11, 44.
- ⁵³ Ibid., p. 38.
- ⁵⁴ Ibid., pp. 3, 23.

- 55 Ibid., pp. 3, 23.
- 56 Ibid., p. 5.
- 57 Ibid., pp. 3-4.
- 58 Ibid., p. 2.
- 59 Ibid., pp. 42, 49-50. For additional information on NVA/VC mobility see Doughty, p. 34; Griffith, pp. 115-117, 128-134.
- 60 Operation Sam Houston, pp. 40, 43, 49-50.
- 61 Ibid., pp. 35-36.
- 62 Ibid., pp. 13, 35.
- 63 Ibid., p. 41.
- 64 Ibid., pp. 35, 38-40.
- 65 Ibid., p. 1.
- 66 MACOI Wrap Up, pp. 35-37.
- 67 Hay, p. 101.
- 68 Ibid., pp. 101, 103.
- 69 101st Airborne Division (Airmobile), Combat After Action Report - Operation Randolph Glen, 101st Airborne Division, 7 December 1969 to 31 March 1970 (Washington D.C.: Department of the Army, 30 June 1970), pp. 2-3, 8-10, 12-16; 101st Airborne Division (Airmobile), After Action Report, FS/OB Ripcord, 1 September 1970, pp. 1-2.
- 70 FS/OB Ripcord, pp. 3-11.
- 71 Ibid., p. 5.
- 72 Ibid., p. 7.
- 73 Ibid., pp. 1-3.
- 74 Ibid., pp. 3-4, 7.
- 75 Ibid., pp. 3-6. See also Stanton, pp. 335-336, 344-345; Palmer, pp. 180-185.
- 76 FS/OB Ripcord, pp. 6-7.
- 77 FS/OB Ripcord, p. 9.
- 78 Hays, p. 97.
- 79 Ibid., p. 98; 25th Infantry Division, Operational Report - Combat Lessons Learned, 2 January 1969, Appendix K, pp. 1-3.
- 80 25th Infantry Division Lessons Learned, p. K2.
- 81 Ibid., pp. K2-K3.
- 82 Ibid., pp. K4-K5.
- 83 Ibid., pp. K5-K6.
- 84 Ibid.
- 85 Ibid., pp. K9-K10.
- 86 For additional information on benefits of fire base versus negative affects associated with a loss of surprise see Doughty, p. 36; Ott, pp. 165-167.
- 87 For additional information on NVA/VC maneuver see Griffith, pp. 128-135; Ott, p. 15.
- 88 For additional information on artillery unit efforts to improve responsiveness in the context of fire restrictions see Ott, pp. 85, 179.
- 89 For additional information on positioning of artillery units see "Fire Support Base Defense," p. II-4; Ott, pp. 69-70; Operation Sam Houston, pp. 40-41.
- 90 Operation Sam Houston, p. 40; Ott, p. 85.

- ¶1 Ott, pp.132-133.
- ¶2 Ibid., pp.62,68-69.
- ¶3 Ibid., pp.179-180.
- ¶4 For additional information on sensors see Ibid., pp.180-181; Griffith, pp. 112-114.
- ¶5 For additional information on fire base defenses see "Fire Support Base Defense," pp. II-7 - II-8.
- ¶6 For additional information on deception activities see Doughty, p.36.
- ¶7 For further information on the linkage between current tactical doctrine and scholarly views of counterinsurgency warfare see Steven Metz, A Theater Approach to Low Intensity Conflict (Langley, AFB: CLIC, April 1989); Army-Air force Center for Low Intensity Conflict, Operational Considerations for Military Involvement in Low Intensity Conflict (Langley, AFB: CLIC,1987).
- ¶8 Edward J. Stiles, "Automated Fire Control: A New Generation" Army (July 1989), pp. 66; Scales, p. 74.; Chris Bellamy, The Future of Land Warfare, (New York: St. Martin's Press, 1987), pp.188-189.

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